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1. Branch, L. K.: Ferrous sulfate poisoning: Report of fatal case, Pediatrics 10:677, 1952. 2. Burrows, N. F. E.: Ferrous sulphate poisoning, Proc. Roy. Soc. Med. 44:297, 1951. 3. Clark, W. M., Jr., et al.: Ferrous sulfate poisoning, Am. J. Dis. Child. 88:220, 1954. 4. Crosskey, P. H.: Pyloric stenosis after ferrous sulphate poisoning, Brit. M. J. 2:285, 1952. 5. Curtiss, C. D., and Kosinski, A. A.: Fatal case of iron intoxication in a child, J.A.M.A. 156:1326, 1954. 6. Davis, D. W., and Gibbs, G. E.: Iron poisoning, Am. Pract. & Digest Treat. 7:1092, 1956. 7. Duffy, T. L., and Diehl, A. M.: Ferrous sulfate poisoning: Report of 3 cases, J. Pediat. 40:1, 1952. 8. Editorial: Fatal iron poisoning, Brit. M. J. 1:293, 1950. 9. Editorial: Fatal hepatitis due to iron poisoning, Ibid. 1:312, 1950. 10. Editorial: Poisoning by iron salts, Ibid. 1:386, 1947. 11. Editorial: Poisoning by ferrous sulphate, Ibid. 2:1034, 1949. 12. Editorial: Acute iron poisoning in children, Canad. M. A. J. 66:278, 1952. 13. Editorial: Poisoning fr[illegible] accidental inges[illegible]nal iron, J.A.M.A. 148:1280, 1952. 14. Editorial: Ferrous sul[illegible] Ibid. 1[illegible] Editorial: Iron poisoning, J. Pediat. 4[illegible]41, 1952. 16. Editor[illegible] [illegible]:89[illegible]. 17. Editorial: Iron as a Liver poison, Ibid. 1:552, 1955. [illegible] Smith, A[illegible] A.: Ferrous sulphate poisoning, Brit. M. J. 1:156, 1954. 19. Ferrous sulfate poisoning (Symposium), Internat. M. Digest 66:367, 1955. 20. Forshall, I., a[illegible] P. P.: Ferrous sulphate [illegible]ing causing pyloric obstruc[illegible] J. Surg. 41:379, 1954. [illegible] F. H., et al.: [illegible] gestion of f[illegible] Clin. Path. [illegible] N.: Ferrou[illegible] Proc. Roy. [illegible] 23. Hoyt, [illegible] poisoning: [illegible] Oklahoma M[illegible] 24. Luongo, [illegible] S. S.: The liver [illegible]e poisoning: A report of [illegible]s in children and expe[illegible]tal study, New England J. Med. [illegible]995, 1954. 25. Smith, R. P[illegible]l.: Ferrous sulfate toxicity: [illegible]eport

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[a] Franklin, M.: To be published. [b] Rohse, W. G., and Kemp, C. R.: A study of the relative toxicity of iron choline citrate. To be published.

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(Continued on Page 42)

Tips Given for Motion Sickness Prevention

You don't have to worry much any more about that old vacation bugaboo, motion sickness, according to a Minneapolis physician.

Under most circumstances, motion sickness can be warded off, and even when preventive measures fail, drugs are available to give relief, Dr. John E. Eichenlaub said in a recent issue of *Today's Health*, the American Medical Association's consumer magazine.

Motion sickness results from "too much nerve-tickling action" in the ear's labyrinth, the organ that helps a person keep his balance. Keeping the head steady reduces this action. The head can be steadied by leaning it against a headrest, bracing it in position with pillows or by focusing the eyes on the horizon.

It is not wise, he said, to focus on rapidly passing objects, such as autos or telephone poles, since the background seems to "dip and plunge." The same thing happens when one reads or does fancy work. It's all right to read if you choose big type and periodically look away. Crocheting and knitting should be done only if you can do it without looking, he said.

Youngsters can be encouraged to focus on the horizon by playing animal- or tractor-spotting games, but not license-spotting games.

This background dipping and plunging effect is probably the chief reason for extra risk of sickness in certain airplane seats, especially in those on the left side just back of the wing, he said. The plane usually turns left and when the passenger can see down but can't get a broad long view, he looks at the passing landscape with short, rapid eye movements. So stay on the right, either front or rear, and keep the eyes on the horizon to minimize air sickness, Dr. Eichenlaub advised.

Experiments have shown that a person lying with a pillow directly under his head is much more likely to get sick than one lying with his head tipped back slightly, he said. In a plane or bus the seat can be tilted back and the headrest used without a pillow, or with the pillow behind the back. The standard deck chair holds the head in just about the right position.

A trip to the deck may give relief in the early stages of seasickness, but not because of the fresh air. Tests have shown that fresh air has little effect on motion sickness. The walk around the deck helps because you can see the horizon and because you have a change in the type of motion. Dr. Eichenlaub also noted that the effects of a ship's motion are much less noticeable amidship than they are fore and aft.

There have been countless pieces of conflicting advice about what to eat before traveling, but most authorities agree that light meals are definitely desirable. Once under way light or heavy meals

(Continued on Page 28)

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1. Weil, L. L.: J. Florida Acad. Gen. Pract. 4:9 (July) 1954. 2. Williams, Henry L.: J. Michigan State Med. Society 51:572-576 (May) 1952.

Tips Given for Motion Sickness Prevention

(Continued from Page 18)

won't make any difference. He said the belief that one travels better by starting out with a hangover is "certainly wrong."

Previous episodes of sickness may make a person get sick sooner, and the more he thinks and talks about impending illness the more likely it is that trouble will materialize. This is especially true of children, he said.

However, many drugs are now available for prevention and cure of motion sickness. An Army study of 26 drugs for seasickness showed Marezine, Bonamine, and Phenergan (trade names) to be the most effective. An airline study showed that Marezine and Bonamine were superior remedies. Dramamine, one of the oldest antimotion-sickness drugs, is also effective against sea and air sickness, while Trimeton is good for air sickness.

These drugs are most effective if they are taken at least half an hour before departure. Most are also effective even after vomiting, Dr. Eichenlaub said.

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Physician Reports Allergy to Common Ivies

Two cases of allergy to Algerian ivy, a common house and garden plant, were reported recently by a Pasadena, Calif., dermatologist.

Writing in the American Medical Association's recent issue of the *Archives of Dermatology*, Dr. Clete S. Dorsey said he knows of no other reported cases of dermatitis from Algerian ivy.

Both patients developed severe, itchy skin eruptions after contacting juice from the stems and leaves of the plant. Touching the unbroken leaves did not produce a reaction.

After recovering from the Algerian ivy dermatitis, both patents became sensitive to the common English ivy, a close relative of Algerian ivy. This suggested that the patients who have been sensitized by one of the plants will also be allergic to the other, he said.

Dr. Dorsey said he has a "strong suspicion" that contact dermatitis from the English and Algerian ivy is "not rare," since they are among the most widely cultivated of all plants.

Variants of English ivy grow throughout the United States. Algerian ivy, which has become quite popular in the last 10 years, grows outdoors only in the West Coast states. However, most of the large-leaved variegated house ivies are Algerian ivies and

(Continued on Page 34)

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Hazards of Jet Aircraft Maintenance

Some of the health problems encountered in repairing and maintaining jet planes, and some preventive measures, were discussed recently by two Air Force physicians.

The most hazardous of these operations is the cleaning and repair of the aircraft fuel cells. In fact, it is potentially more dangerous than cleaning bulk gasoline storage tanks, according to 1st Lieut. Americo R. Lombardi (MSC), and Capt. Arthur S. Lurie (MC).

The fuel cells of the B-47 jet bomber are rubber-lined cubicles that fill cavities within the aircraft fuselage. They are difficult to reach and allow a very small amount of working room. Since most of the cells are connected, it is often necessary to crawl from one cell into another, thus penetrating deeper into the fuselage and away from fresh air, the doctors said in a recent issue of the *Journal of the American Medical Association.*

These "extremely poor" working conditions present a number of hazards, including fire and explosion, acute intoxication from fuel vapors, systemic poisoning from tetraethyl lead (a fuel ingredient), skin reactions from direct contact with petroleum hydrocarbons, and the acute psychological problem of confinement in a small space.

Seven of 12 airmen studied at Smoky Hill Air Force Base, Salina, Kan., reported various physical symptoms when they did not wear a protective face mask. These included dizziness, indigestion, headache, visual blurriness, "echoing" and repetition of thoughts.

Because these health problems may in the "not-too-distant future" be encountered by civilians working on jet airliners, the authors recommended some safety measures for persons working on jet fuel cells.

They said the work should be performed by at least two men, with one man outside the cell serving as the observer of the man within the cell. They should carry on a continuous conversation, so that the observer may recognize any emergency and take prompt action in rescuing the repairman.

Lt. Lombardi is now at the USAF Hospital, Schilling Air Force Base, Salina, Kan., and Capt. Lurie is at the New England Center Hospital, Boston.

Physician Reports Allergy to Common Ivies

(Continued from Page 31)

can be found anywhere in the country.

He noted that many plants are called ivies without being related to these "true ivies." For example: Kenilworth ivy, Boston ivy, German ivy (sometimes called Japanese ivy), ground ivy, marine ivy, Cape ivy, poison ivy, or philodendron (a common houseplant).

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Limitations of Tolbutamide

The release of the new oral diabetic drug tolbutamide (Orinase) for prescription use imposes new responsibilities on the physician and patient, according to an editorial in a recent issue of the *Journal of the American Medical Association.*

The drug, which was available only for experimental purposes until recently, is not a substitute for insulin and can be used only in certain types of diabetic patients. Both insulin and tolbutamide help control the amount of sugar in the blood, which is excessive in diabetes mellitus.

Real and serious problems will arise if tolbutamide is dispensed without a prescription and if it is used in patients for whom it "obviously is not indicated." It is most likely to help the diabetic who has a relatively mild case which developed after the age of 30.

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(Continued in Back Advertising Section Page 60)

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WANTED—Doctors for full time employment as ward physicians for medical, surgical and neuropsychiatric services in recently constructed, modern VA neuropsychiatric hospital, Jefferson Barracks, Missouri, located 12 miles from downtown St. Louis. Salary up to $12,685, depending upon qualifications. 25% additional salary up to $13,760 if board certified. 30 days annual leave, liberal sick leave, insurance and retirement benefits. Hospital affiliated in residency training program. Applicants must be United States citizens, graduates of approved medical schools, and physically qualified. If interested, communicate with the manager, VA Hospital, Jefferson Barracks 23, Missouri.

SITUATIONS WANTED

EXPERIENCED MEDICAL OFFICE PERSONNEL (MEDICAL SECRETARIES and RECEPTIONISTS, REGISTERED NURSES, LABORATORY and X-RAY TECHNICIANS) available to you through a telephone call or a letter to THE MEDICAL CENTER, the agency which for the past eight years, has been giving discriminating service to California physicians. 26 O'Farrell Street, Room 405, San Francisco. YU 2-3412.

GP, TWO (2) YEARS PRACTICE, desires opportunity in Southern California, sole, dual, or group. One (1) year rotating internship, Los Angeles County General Hospital. Graduate Ohio State. No service obligations. Box 93,470, California Medicine.

GENERAL PRACTITIONER: Age 35. Experienced. California license. Special interest in Psychiatry. Desire association with one or more physicians in general practice. Available for interview. Can start any time. Box 93,525, California Medicine.

INTERNIST, AGE 35, university trained in San Francisco and Boston in medicine and diseases of the chest, desires association with group or internist in San Francisco or Orange County. Now in San Francisco. Reply Box 93,530, California Medicine, or telephone collect, San Francisco, Douglas 2-7121.

INTERNIST, 31, single, Board eligible. Completing military service—July, 1957. Desires group or association. Available September 1, 1957. Box 93,535, California Medicine.

INTERNIST, 33, family, AAGP member, Three (3) years approved residency in university affiliated hospital. Two (2) publications, California license, no military obligation, desires industrial or insurance position in San Francisco, Bay Area, or Northern California. Available November 1, 1957. Box 93,540, California Medicine.

OBSTETRICIAN - GYNECOLOGIST, Military obligation completed. Board eligible. Training at Yale University—Fordham Hospital. Age 34. Have California license, family, wife is physician. Desires partnership or association with Obstetrician. Reputable group clinic, also preferred. Box 93,495, California Medicine.

POSITION WANTED: Age 45—Too young to retire—old enough to desire time with family. Have accumulated average lifetime experience in Ob-Gyn. Seasoned teaching and administrative ability. Good patient rapport. Desire position preferably in mountain area where services needed only nine to ten months annually. California Medicine, Box 93,520.

(Continued in Back Advertising Section Page 64)

More Research Needed In Cosmetic Field

As cosmetics leave the "realm of luxury" and become items of necessity, more and better research into the fundamental properties of the skin also becomes a necessity, according to a Federal Food and Drug Administration official.

Dr. Arnold J. Lehman, chief of the FDA division of pharmacology, Washington, D. C., said the increasing demand for cosmetics has led to the new use of many known substances and the development and extensive manufacture of new synthetic compounds.

He made his statements in a guest editorial in a recent issue of the *Journal of the American Medical Association.*

Unfortunately, carefully controlled research into the fundamental principles of skin properties and mechanisms and the actions of various chemicals and drugs on the skin has "not kept pace" with the many new products and the claims made on their behalf, he said.

Certain unobjectionable claims have been advanced for the effectiveness of certain preparations for reducing skin dryness and hiding skin blemishes and wrinkles.

However, in recent years the trend has been to advertise such products as being more than just cosmetics—that they serve as "skin foods, rejuvenators or tonics," "contour creams" for bust development or bust reducing, wrinkle eradicators, and "deep pore" cleaners.

"To date, however, no conclusive evidence has been offered in support of many of these claims," he said. "For example, there is nothing known to science that will restore color to hair or cure early male baldness."

Along with this recent trend, a number of biologically active substances, such as vitamins and hormones, have been incorporated into cosmetic preparations. The claims for these preparations "subtly hint" at their therapeutic value without actually saying so.

For instance, vitamin A supposedly enhances the appearance of the skin. Actually, however, there is no well-substantiated scientific account to support the contention that cosmetics containing vitamin A are of greater value than those lacking it.

The actual value of vitamins, hormones, and other chemicals in cosmetics is not the only question and problem, Dr. Lehman said. There is also a question of safety—what potential harm may follow the indiscriminate inclusion of similarly potent chemicals in cosmetics.

"The need for increasing the scope and number of investigations relating to the fundamental problems of skin physiology, biochemistry, pharmacology, and toxicology cannot be stressed too strongly," Dr. Lehman concluded.

specifically for reduction of overweight

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PRELUDIN®

(brand of phenmetrazine hydrochloride)

"…a highly effective and safe appetite suppressant…"[1]

Based on clinical reports, PRELUDIN produces more than twice the weight loss achieved by patients receiving a placebo.[2] It is singularly free of tendency to produce serious side actions, as well as stimulation.[1-3] PRELUDIN imparts a feeling of well-being that encourages the patient to cooperate willingly in treatment.[1-3]

The reduced incidence of side actions with PRELUDIN makes losing weight more comfortable for the average patient, facilitates treatment of the complicated case and frequently permits its use where other anorexiants are not tolerated.[3]

Recommended Dosage: One tablet two to three times daily one hour before meals. Occasionally smaller dosage suffices. On theoretical grounds, PRELUDIN should not be given to patients with severe hypertension, thyrotoxicosis or acute coronary disease.

(1) Holt, J. O. S., Jr.: Dallas Med. J. *42*:497, 1956. (2) Gelvin, E. P.; McGavack, T. H., and Kenigsberg, S.: Am. J. Digest. Dis. *1*:155, 1956. (3) Natenshon, A. L.: Am. Pract. & Digest Treat. *7*:1456, 1956.

PRELUDIN® (brand of phenmetrazine hydrochloride). Scored, square, pink tablets of 25 mg. Under license from C. H. Boehringer Sohn, Ingelheim.

GEIGY Ardsley, New York

778S7

BOOKS RECEIVED

ALCOHOLISM—A Treatment Guide for General Practitioners—Donald W. Hewitt, M.D., Lea & Febiger, Philadelphia, 1957. 112 pages, $3.00.

ANNUAL REVIEW OF MEDICINE—Volume 8—1957—David A. Rytand, Editor and William Creger, Associate Editor, both from Stanford University School of Medicine. Annual Reviews, Inc., Palo Alto, 1957. 530 pages, $7.00.

ATLAS OF CLINICAL ENDOCRINOLOGY—Including Text of Diagnosis and Treatment—Hans Lisser, A.B., M.D., Clinical Professor of Medicine and Endocrinology, University of California School of Medicine; and Roberto F. Escamilla, A.B., M.D., Clinical Professor of Medicine, University of California School of Medicine. The C. V. Mosby Company, St. Louis, 1957. 476 pages, 148 plates, including 3 in color, $18.75.

BLOOD AND BONE MARROW PATTERNS—G. D. Talbott, M.D., formerly Chief of Medicine, 2750th Hospital, Aero Medical Laboratories, Wright-Patterson Air Force Base, Dayton; Elmer S. Hunsiker, B.S., formerly Chief of Laboratories, Aero Medical Laboratories, Wright Air Force Base; and Jonah Li, M.D., University of California Medical Center. Grune and Stratton, New York, 1957. 59 pages, $12.00.

CHANGING PATIENT-DOCTOR RELATIONSHIP, THE—Martin G. Vorhaus, M.D., F.A.C.P. Horizon Press, Inc., 220 West 42nd Street, New York 36, N. Y., 1957. 310 pages, $3.95.

ENCYCLOPEDIC GUIDE TO NURSING—Helen F. Hansen, R.N., M.A., Educational Director, University of California School of Nursing. The Blakiston Division, McGraw-Hill Book Company, Inc., 330 West 42nd Street, New York 36, N. Y., 1957. 406 pages, $6.00.

EPILEPSY—Grand Mal, Petit Mal, Convulsions—Letitia Fairfield, C.B.E., M.D., D.P.H. Philosophical Library, Inc., 15 East 40th Street, New York 16, N. Y., 1957. 159 pages, $4.75.

ESSENTIALS OF CLINICAL PROCTOLOGY—Third Edition—Manuel G. Spiesman, M.D., B.S., LL.D., F.I.C.P., Associate Professor of Proctology; and Louis Malow, M.D., B.S., F.A.C.S., Associate in Surgery, both from the Chicago Medical School. Grune & Stratton, New York, 1957. 316 pages, $8.75.

GIFFORD'S TEXTBOOK OF OPHTHALMOLOGY—Sixth Edition—Francis Heed Adler, M.D., William F. Norris and George E. DeSchweinitz, Professor of Ophthalmology, University of Pennsylvania Medical School. W. B. Saunders Company, Philadelphia, 1957. 499 pages, 277 figures and 26 color plates, $8.00.

HEALTH YEARBOOK—1956—Compiled by Oliver E. Byrd, Ed.D., M.D., F.A.P.H.A., Professor of Health Education, Stanford. Stanford University Press, Stanford, California, 1957. 278 pages, $5.00.

HEMORRHAGIC DISEASES—Armand J. Quick, Ph.D., M.D., Professor of Biochemistry, Marquette University School of Medicine. Lea & Febiger, Philadelphia, 1957. 451 pages, $9.50.

HUMAN BLOOD GROUPS AND INHERITANCE—Sylvia D. Lawler, M.D., External Scientific Staff, Medical Research Council, Galton Laboratory, University College, London; and L. J. Lawler, B.Sc., formerly of The Polytechnic, Regent Street, London. Harvard University Press, Cambridge, Massachusetts, 1957. 103 pages, $1.50.

MESENCHYMAL DISEASES IN CHILDHOOD—22nd Ross Pediatric Research Conference, Ross Laboratories, Columbus, 16, Ohio, 1957. 103 pages.

MODERN TRENDS IN NEUROLOGY—Edited by Francis M. Forster, M.D., Dean and Professor of Neurology, Georgetown University School of Medicine, The C. V. Mosby Company, St. Louis, 1957. 792 pages, $12.00.

1957 MEDICAL PROGRESS—A Review of Medical Advances During 1956—Morris Fishbein, M.D., Editor, The Blakiston Division, McGraw-Hill Book Company, Inc., Publisher, New York, N. Y. 1957. 367 pages, $6.00.

OCCUPATIONAL DISEASES OF THE SKIN—Third Edition—Thoroughly Revised—Louis Schwartz, M.D., Medical Director (Retired) USPHS, Chief Dermatosis Section, Consultant in Dermatology, National Institutes of Health; Louis Tulipan, M.D., Emeritus Clinical Professor of Dermatology. New York University; and Donald J. Birmingham, M.D., Medical Director, Chief Dermatologist, Occupational Health Program, USPHS. Lea & Febiger, Philadelphia, 1957. 981 pages, 189 illustrations, $18.00.

ORAL DIAGNOSIS AND TREATMENT (ORAL MEDICINE)—Third Edition—A Textbook for Students and Practitioners of Dentistry and Medicine — Samuel Charles Miller, D.D.S., F.A.C.D., F.A.D.M., Professor of Periodontia and Oral Medicine, New York University College of Medicine. The Blakiston Division, McGraw-Hill Book Company, New York, 1957. 977 pages, 577 black and white illustrations and 30 color plates, $16.00.

PRACTICAL GYNECOLOGY—Second Edition—Walter J. Reich, M.D., F.A.C.S., F.I.C.S., and Mitchell J. Nechtow, M.D., F.A.C.S., F.I.C.S., J. B. Lippincott Company, Philadelphia, 1957. 648 pages, 248 illustrations, 68 in color, $12.50.

PRINCIPLES AND METHODS OF PHYSICAL DIAGNOSIS, THE—Correlation of Physical Signs with Certain Physiological and Pathological Changes in Disease—Simon S. Leopold, M.D., Professor of Clinical Medicine, University of Pennsylvania School of Medicine. W. B. Saunders Company, Philadelphia, 1957. 537 pages, $9.00.

PRINCIPLES OF SURGICAL PATHOLOGY—Harry Davis, M.D., C.M., F.A.C.S., Clinical Professor of Surgery and Director of Surgical Research, College of Medical Evangelists; Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers, 49 East 33rd Street, New York 16, N. Y., 1957. 841 pages, $20.00.

ROAD TO INNER FREEDOM, THE—The Ethics—Baruch Spinoza. The Philosophical Library, 15 East 40th St., New York 16, N. Y., 1957. 215 pages, $3.00.

RYPINS' MEDICAL LICENSURE EXAMINATIONS—Topical Summaries and Questions—8th Edition—Walter L. Bierring, M.D., M.A.C.P., M.R.C.P., Edin. (Hon.), J. B. Lippincott Company, Philadelphia, 1957. 964 pages, $10.00.

SCHWEITZER, ALBERT—The Story of His Life—Jean Pierhal. Philosophical Library, 15 East 40th St., New York 16, N. Y., 1957. 160 pages, $3.00.

SIGNS AND SYMPTOMS—Applied Pathologic Physiology and Clinical Interpretation—Third Edition—Edited by Cyril Mitchell MacBryde, A.B., M.D., F.A.C.P., Associate Professor of Clinical Medicine, Washington University School of Medicine. J. B. Lippincott Company, Philadelphia, 1957. 973 pages, 191 illustrations, 6 color plates, $12.00.

SOME MILESTONES IN THE HISTORY OF HEMATOLOGY—Camille Dreyfus, M.D., Grune & Stratton, Inc., 381 Fourth Ave., New York 16, N. Y., 1957. 87 pages, $4.50.

SPEECH CORRECTION AT HOME—Morris Val Jones, Ph.D., Director, Speech and Reading Clinic, Morrison Center for Rehabilitation. Charles C. Thomas, Publisher, Springfield, Illinois, 1957. 138 pages, $4.75.

TEXTBOOK OF HISTOLOGY, A—7th Edition—Alexander A. Masimow, Late Professor of Anatomy, University of Chicago; and William Bloom, Professor of Anatomy, University of Chicago. W. B. Saunders Company, Philadelphia, 1957. 628 pages, 1082 illustrations, 265 in color on 631 figures, $11.00.

TEXTBOOK OF PATHOLOGY—With Clinical Applications—Stanley L. Robbins, M.D., Associate Professor of Pathology, Boston University School of Medicine. W. B. Saunders Company, Philadelphia, 1957. 1351 pages, 933 figures, $18.00.

TREATMENT OF BURNS, THE—Curtiz P. Artz, M.D., F.A.C.S., Lt. Col., MC USA (Ret.), Associate Professor of Surgery, University of Mississippi Medical Center; and Eric Reiss, M.D., Instructor in Medicine, Washington University School of Medicine, St. Louis. W. B. Saunders Company, Philadelphia, 1957. 250 pages, 199 illustrations, $7.50.

(Continued in Back Advertising Section Page 84)

California
MEDICINE
OFFICIAL JOURNAL OF THE CALIFORNIA MEDICAL ASSOCIATION

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Volume 87 JULY 1957 Number 1

Poliomyelitis

Effect of Salk Vaccine on Severity of Paralysis

MILFORD G. WYMAN, *M.D.*, and W. DEAN LINDGREN, *M.D.*, Los Angeles, and ROBERT MAGOFFIN, *M.D.*, Berkeley

- The severity of paralysis in 642 nonvaccinated patients with poliomyelitis and in 93 vaccinated patients was observed at the Los Angeles County General Hospital in 1956. In the vaccinated group of patients the proportion of nonparalytic and mild paralytic cases was consistently greater in each 5-year age group under age 15 than in the nonvaccinated. In the entire 0 to 14 age bracket, 12 per cent of the vaccinated patients had moderate or marked degrees of paralysis as compared to nearly 50 per cent of the nonvaccinated cases. There were too few vaccinated patients for comparison over this age.

In the vaccinated group as a whole there was no apparent difference in severity as between patients who had had one inoculation and those who had had two. Among the small number of vaccinated patients under age 5, however, there was a suggestive decrease in severity between patients with one and with two inoculations.

In nonvaccinated patients, the disease tended to be most severe in the 0 to 4 age group and young adults, ages 20 to 35. The largest number of deaths and of cases in which a respirator was needed occurred among young adults. None of the vaccinated patients died or needed a respirator, but tracheotomy was necessary for three.

The concentration of mild cases in the vaccinated group is believed to indicate that partial protection was conferred by the vaccine, resulting in a shift to lesser degrees of severity. Such a shift would obscure the conversion of nonparalytic cases to inapparent infections.

Convalescent follow-up examinations of 62 vaccinated and 68 nonvaccinated patients mostly in the 5 to 9 age group, revealed that in both series of patients approximately 90 per cent of the muscle groups graded as having "slight paralysis" at the time of discharge, were nonparalytic on the later examination.

A NUMBER OF STUDIES have demonstrated the effectiveness of the Salk vaccine in reducing the incidence of paralytic poliomyelitis by 60 to 80 per cent or more.[1,4,8,10,13] In these studies based upon a comparison of vaccinated and nonvaccinated populations, the effectiveness was measured in terms of prevention of paralytic cases. A vaccinated person subsequently diagnosed as having paralytic poliomyelitis was tabulated as a "vaccine failure" regardless of the severity of paralysis.

It is the purpose of this communication to present evidence that the vaccine reduces the severity of illness among persons termed "vaccine failures."

From the Division of Preventive Medical Services, California State Department of Public Health and the Communicable Disease Service of Albert G. Bower, M.D., Los Angeles County General Hospital.

Dr. Wyman, a senior assistant surgeon in the Public Health Service, is on assignment to the State Department of Public Health from the Epidemic Intelligence Service, Communicable Disease Center, Atlanta, Georgia.

Presented before the Section on Public Health at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

This study represents a collaborative effort involving personnel of the Los Angeles County General Hospital, local health departments in Los Angeles County and the California State Department of Public Health.

During 1956, 754 cases of poliomyelitis were diagnosed at the Los Angeles County General Hospital, in 102 of which the patient had received at least one inoculation of Salk vaccine before the onset of illness. The cases studied made up approximately 90 per cent of the known cases reported in Los Angeles County and 35 per cent of the cases reported in California in 1956.

The patients were usually first seen in the admitting room of the hospital approximately one to four days after onset of symptoms. The usual length of hospitalization in noncomplicated cases was seven to ten days. All patients were discharged as soon as possible after the acute phase of illness had subsided. If indicated, patients were discharged to secondary hospitals for further treatment and rehabilitation. A muscle examination to determine the extent of paralysis was done on each patient by a qualified physical therapist one day before discharge.

The muscle-grading and recording system used at the hospital classified paralysis as "slight" (estimated 75 per cent to 90 per cent of normal strength), "moderate" (50 per cent to 75 per cent), or "marked" (less than 50 per cent of normal strength). Compared with the commonly used system of recording muscle function as "good," "fair," "poor," "trace," or "zero"; "slight" corresponds to "good," "moderate" corresponds to "fair," and "marked" corresponds to "poor," "trace" and "zero." Using this system of evaluation, the function was recorded for each of 17 muscle groups: Right and left shoulder, elbow and wrist; right and left hip, knee and ankle: back, neck, abdomen, muscles of respiration, and the bulbar muscles. Pertinent notes were included on the status of individual muscles.

To provide a simple basis for tabulation, the severity of each case was classified on the basis of the greatest degree of weakness found in any muscle or muscle group. No weighting factor was included for the occurrence of lesser degress of weakness in other muscle groups or the number of muscle groups involved.

From this classification of severity made at the time of primary hospital discharge, two measures or indices of severity were adopted for comparing vaccinated and nonvaccinated patients:

1. The per cent of patients in each group having slight or no paralysis as against moderate or marked paralysis.

2. The "average severity score." This score was derived by giving a numerical grade, ranging from zero to three points, to each patient based upon zero for nonparalytic, one for slight, two for moderate and three for marked paralysis. The sum of the individual grades divided by the number of patients in the group gives "the average severity score."

In addition to the data on severity of paralysis at discharge, muscle examinations in late convalescence were obtained on a series of 130 patients under 15 years of age who were observed at the hospital in 1955 and 1956. Most of these examinations were done between two and five months after onset, but a few were done as early as a month and a half and as late as ten months after onset.

All muscle examinations in this study were performed by two examiners. To test comparability of measurement, duplicate examinations of 17 sets of muscles in each patient were performed independently by these two examiners on a series of ten control patients, making a total of 170 muscle gradings by each examiner. There was complete agreement in the gradings of the two examiners.

Since most patients with poliomyelitis do not receive convalescent care at the Los Angeles County General Hospital, follow-up observation could not be obtained in all cases. A particular effort was made to get convalescent examination of vaccinated patients. Therefore, patients on whom follow-up data were obtained did not constitute a representative sample of all vaccinated and nonvaccinated patients with poliomyelitis diagnosed at the hospital. Hence, the results of the follow-up study cannot be applied directly to the total hospital series on whom severity at discharge was measured. The convalescent examinations did provide evidence, however, of the extent of muscle recovery in the various grades of initial severity.

The poliomyelitis vaccination record of each patient was investigated by local health department personnel in the patient's home jurisdiction. Dates of inoculation, site of each injection, lot number and manufacturer of the vaccine were confirmed and recorded on a case history form, separate from the hospital record.* Clinical findings from the hospital record were uniformly transcribed on the same history form by the physician in charge of the study (Dr. Wyman).

RESULTS

Classification of Severity at Hospital Discharge

Data on age and degree of paralysis at discharge of the nonvaccinated patients with poliomyelitis observed at the Los Angeles County General Hospital in 1956 are given in Table 1. Among the 642 nonvaccinated patients, 189 (29 per cent) were children under five years of age. There were more than twice as many cases in this group than in any other 5-year age group. The proportion of cases in this age group with marked and moderate paralysis, 58 per cent, and the average severity score, 1.8, were also higher than in any other age group. Severity, as measured by both of the indices shown here, tends to be appreciably less during the next 15-year age span, 5 to 19 years, but increases again in the adult age groups, in which the number of cases also increases. This pattern of severity in relation to age and case incidence is illustrated in Chart 1. A similar pattern of severity in relation to age is reflected in the statewide morbidity data by the proportion of cases in each group reported as paralytic in California during recent years. In contrast to incidence data from previous years, however, was the sharp drop in the number of cases in the 5 to 9 age group. Cases in this age group have previously equaled or exceeded the number in the 0 to 4 age group.

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*This essential part of the study was conducted through the cooperation of the Los Angeles County Health Department, the Los Angeles City Health Department, the Long Beach Health Department and the Pasadena Health Department.

The severity of paralysis in vaccinated patients at the time of discharge is summarized in Table 2. This table omits 19 patients who had onset less than 30 days after a single inoculation. In these 19 cases, the intervals from inoculation to onset ranged from one to 28 days and in 16 cases the interval was 15 days or less. Allowing for the usual incubation period of 7 to 21 days in poliomyelitis, in most of these 19 cases the disease was either in the incubation period at the time of inoculation or the patient was exposed before there was sufficient time for the full antibody response to occur. The average severity score of this group of patients was 1.3, which is quite similar to the 1.5 score observed in the nonvaccinated group. Twelve of these patients had slight or no paralysis.

Of 93 patients with onset more than 30 days after the first inoculation, 85 (91 per cent) were under 15 years of age and 59 (63 per cent) were in the 5 to 9 age group. This age distribution is in keeping with the heavy concentration of the vaccination pro-

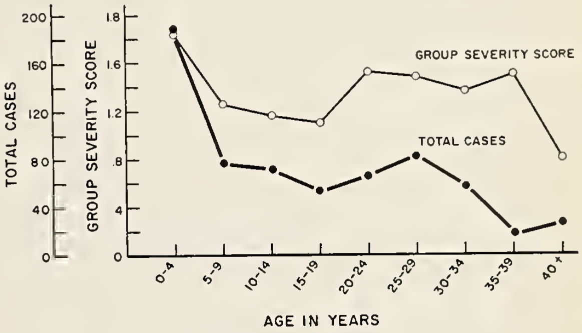

Chart 1.—Nonvaccinated poliomyelitis patients by age and severity, Los Angeles County General Hospital—1956. (Severity score: No paralysis = 0; Slight = 1; Moderate = 2; Marked = 3. Group severity score is the average of scores for individual patients.)

TABLE 1.—*Severity of Paralysis in Nonvaccinated Poliomyelitis Patients by Age, Los Angeles County General Hospital, 1956*

Age	Total No. Cases	Severity of Paralysis				Per Cent		Average* Severity Score
		Marked	Moderate	Slight	Non-paralytic	Marked and Moderate	Slight and Non-paralytic	
All ages	642	208	86	141	207	46	54	1.5
0 to 4	189	82	28	46	33	58	42	1.8
5 to 9	78	16	14	24	24	38	62	1.3
10 to 14	72	15	10	19	28	35	65	1.2
15 to 19	54	14	5	8	27	35	65	1.1
20 to 29	148	54	18	23	53	49	51	1.5
30 to 39	75	22	10	17	26	43	57	1.4
40+	26	5	1	4	16	23	77	.8

*No paralysis = 0, Slight = 1, Moderate = 2, Marked = 3. Average severity score is the total group score divided by the number of patients.

TABLE 2.—*Severity of Paralysis in Vaccinated Poliomyelitis Patients by Age, Los Angeles County General Hospital, 1956*

Age	Total No. Cases	Severity of Paralysis				Per Cent		Average* Severity Score
		Marked	Moderate	Slight	Non-paralytic	Marked and Moderate	Slight and Non-paralytic	
All ages	93	8	3	44	38	12	88	.8
0 to 4	16	5	....	4	7	31	69	1.2
5 to 9	59	3	2	34	20	8	92	.8
10 to 14	10	....	....	5	5	....	100	.5
15 to 19	4	....	....	1	3	†	†	†
20 to 29	2	....	1	....	1	†	†	†
30 to 39	2	....	....	....	2	†	†	†
40+	....	....	....	....	....	....	....	....

*No paralysis = 0, Slight = 1, Moderate = 2, Marked = 3. Average severity score is the total group score divided by the number of patients.
†Not calculated because of small number of cases.

grams in primary-grade school children. Paralysis in the vaccinated patients, as in the nonvaccinated, tended to be greater in the 0 to 4 year age group, with an appreciable decrease of severity in the 5 to 9 year and 10 to 14 year age groups. In each age group, however, in which there were sufficient cases to compare, the indices of severity were consistently lower among the vaccinated patients. The stepwise decrease in the average severity score of vaccinated patients as compared with the nonvaccinated in each five-year age group under age 15 is illustrated in Chart 2. The same trend toward decreased severity among the vaccinated patients appeared to hold through the adult age groups but the number of vaccinated cases observed over age 15 was too small for comparison.

In Table 3 the severity of paralysis in vaccinated patients under 15 years of age is shown in relation to the number of inoculations received before onset. In this table, four cases in which onset was less than seven days after the second inoculation were counted as single-inoculation cases; one case with onset three days after the third inoculation was tabulated as a two-inoculation case. In the 0 to 4 year age group, five cases following a single inoculation had an average severity score of 1.6 and 11 cases after two inoculations had an average severity score of 1.0, compared with 1.8 for the nonvaccinated group. No conclusions can be drawn from the small numbers of cases observed in this age group.

In the group of children of older age (Table 3-B), in which the number of vaccinated patients was greater, there was not much difference in the severity of illness as between patients with a single inoculation and those with two inoculations, but the severity was higher in nonvaccinated than in vaccinated patients. Two patients had received three inoculations; neither had paralysis.

Keeping in mind the influence of age and the number of inoculations, the influence of vaccination on the entire group of patients under age 15 may be illustrated as shown in Chart 3. Nearly 90 per cent

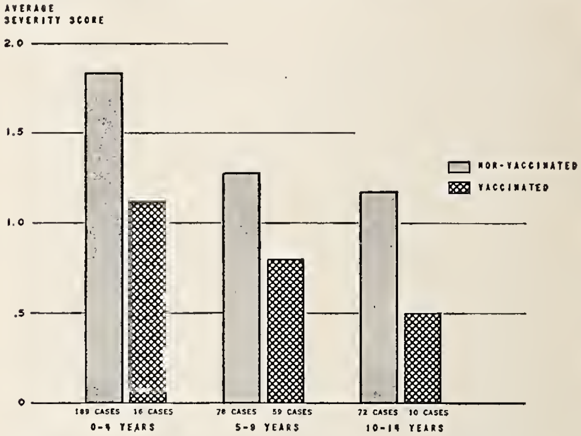

Chart 2.—Severity of poliomyelitis in vaccinated and nonvaccinated patients, Los Angeles County General Hospital, January-December, 1956. (Severity score: No paralysis = 0; Slight = 1; Moderate = 2; Marked = 3. Group severity score is the average of scores for individual patients.)

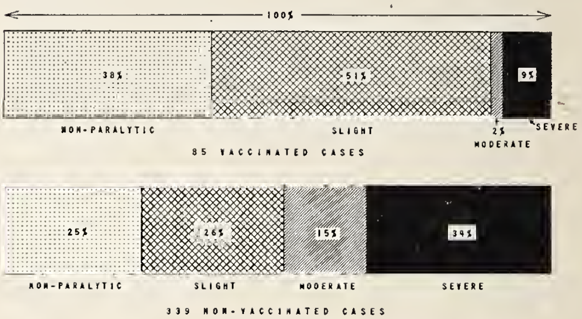

Chart 3.—Severity of poliomyelitis in vaccinated and nonvaccinated children, ages 0 to 14, Los Angeles County General Hospital, January-December, 1956.

TABLE 3.—***Severity of Paralysis in Poliomyelitis Patients by Number of Inoculations for Selected Age Groups, Los Angeles County General Hospital, 1956***

Number of Inoculations	Total Cases	Degree of Severity				Average* Severity Score
		Marked	Moderate	Slight	Non-paralytic	
		A. Cases 0 to 4 Years of Age				
Nonvaccinated	189	82	28	46	33	1.8
One inoculation	5†	2	....	2	1	1.6
Two inoculations	11	3	....	2	6	1.0
Three inoculations	....	....	....	....	....	....
		B. Cases 5 to 14 Years of Age				
Nonvaccinated	150	31	24	43	52	1.2
One inoculation	18†	1	1	8	8	.7
Two inoculations	49‡	2	1	31	15	.8
Three inoculations	2	....	....	....	2	.0

*No paralysis = 0, Slight = 1, Moderate = 2, Marked = 3. Average severity score is the total group score divided by the number of patients.
†Includes two patients with onset less than 7 days after second inoculation.
‡Includes one nonparalytic case in patient with onset 3 days after third inoculation.

of the vaccinated patients had slight or no paralysis; approximately 50 per cent of the nonvaccinated had this degree of involvement.

Respirator Cases, Tracheotomy and Death

Data on the number of patients requiring use of the respirator, on the number who had to have tracheotomy and on mortality are summarized in Table 4. Among the nonvaccinated a total of 84 patients was placed in respirators and 63 had tracheotomy. There were eight deaths. The highest incidence of involvement requiring the use of a respirator was in the adult age groups in which there were insufficient vaccinated cases for comparison with the nonvaccinated. However, among the 339 nonvaccinated patients under 15 years of age, 25 needed the respirator, 24 had tracheotomy and two died. At this rate, approximately six patients needing respirator care and six needing tracheotomy would have been expected among the 85 vaccinated patients under age 15. But, in fact, tracheotomy was needed by three patients, all under age 10, and there were no respirator cases or deaths among vaccinated patients of any age.

TABLE 4.—*Respirator Cases, Tracheotomies and Deaths Among Poliomyelitis Patients by Age and Vaccination Status, Los Angeles County General Hospital, 1956*

Age Group	Total No. Cases	Need for Respirator	Need for Tracheotomy	Deaths
A. Nonvaccinated Patients				
All ages	642	84	63	8
0 to 4	189	10	11	1
5 to 9	78	9	7	1
10 to 14	72	6	6	....
15 to 19	54	6	5	1
20 to 24	66	14	8	1
25 to 29	82	19	9	3
30 to 34	58	13	9	....
35 to 39	17	4	5	1
40 and over	26	3	3	....
B. Vaccinated Patients				
All ages	93	....	3	....
0 to 4	16	....	2	....
5 to 9	59	....	1	....
10 to 14	10	....	....	....
15 and over	8	....	....	....

TABLE 5.—*Severity of Paralysis at Hospital Discharge and at Follow-up in Nonvaccinated and Vaccinated Poliomyelitis Patients, Age 0 to 14, Los Angeles County General Hospital, 1955-1956*

Severity at Discharge	Total Cases	Severity at Follow-up: Non-Paralytic	Slight	Moderate	Marked
A. Nonvaccinated Patients					
Total cases	68	46	10	11	1
Nonparalytic	23	22	1	....	....
Slight	25	18	4	3	....
Moderate	15	6	4	5	....
Marked	5	....	1	3	1
B. Vaccinated Patients					
Total cases	62	46	15	....	1
Nonparalytic	24	21	3	....	....
Slight	26	23	3	....	....
Moderate	9	2	7	....	....
Marked	3	....	2	....	1

Classification of Severity at Convalescent Examination

The classification of severity based on muscle examination during convalescence as compared with severity at discharge is shown in Table 5. It should be emphasized that, unlike the 1956 cases summarized above, the series of vaccinated and nonvaccinated patients on whom follow-up examinations could be obtained were not representative of all cases diagnosed at the hospital. The follow-up series includes patients from both 1955 and 1956 and reflects a particular effort to include vaccinated patients. Dispersal of patients to various facilities for convalescent care strongly influenced the selection of patients who could and would respond to the request to return to the Los Angeles County General Hospital for an examination during convalescence. The two series thus collected, vaccinated and nonvaccinated patients, were by chance rather closely matched in severity classification at discharge. The two series were also closely matched in age distribution, both being made up almost entirely of the 5 to 9 year age group. Of the 68 nonvaccinated patients on whom follow-up examinations could be obtained (Table 5-A), 23 were nonparalytic at discharge and 22 of these remained nonparalytic on follow-up: one had slight weakness not previously detected. Of 25 patients discharged with slight weakness, 18 had no weakness on follow-up, four continued to have slight weakness and three had moderate weakness. Of 15 patients discharged with moderate weakness, six were nonparalytic, four had slight weakness and five continued to have moderate weakness. Of five patients with marked weakness at the time of discharge, one had slight, three had moderate and one still had marked weakness on the follow-up examination. The pattern of recovery among 62 vaccinated patients on whom follow-up was obtained appeared to be essentially similar to that of nonvaccinated patients. In both the vaccinated and nonvaccinated series, patients discharged as nonparalytic, with few exceptions continued to have no detectable weakness on follow-up. More than three-fourths of the patients discharged with slight weakness were also classified as nonparalytic on follow-up. Although definite improvement was observed, some degree of residual weakness was still present in approximately two-thirds of the patients graded as having moderate paralysis at discharge and in all of the small number of patients discharged with marked weakness.

On the basis of the 17 muscle groups for each patient, a total of 1,156 muscle groups in nonvaccinated patients and 1,054 muscle groups in vaccinated patients were subject to involvement. The severity classification of these muscle groups at the time of hospital discharge and at the follow-up examination is summarized for each series of patients in Table 6. These data give further details of the extent of apparent recovery from mild paralysis observed in both series of patients. Of 176 muscle groups with slight paralysis in nonvaccinated patients at discharge, 165 (94 per cent) were graded nonparalytic on later examination. Among the vaccinated patients, of 151 muscle groups with slight paralysis at discharge, 134 (89 per cent) were nonparalytic on follow-up. In both series, approximately two-thirds of the muscle groups graded as having moderate paralysis at discharge were graded normal at follow-up. The data on marked involvement are too sparse for interpretation. One patient in each series accounted for the muscle groups graded "marked" on discharge which remained "marked" on the convalescent examination.

The extent of paralysis, as measured by the average number of muscle groups per patient showing any degree of weakness, is shown in Table 7. In both the vaccinated and nonvaccinated series there is a similar correlation between the classification of severity and the average number of muscle groups involved, averaging three to four muscle groups per patient in cases of slight weakness, seven muscle groups in cases of moderate paralysis and ten to thirteen muscle groups in cases of marked paralysis. In each severity classification, the average number of muscle groups involved per patient was appreciably reduced at the time of the follow-up examination. The extent of recovery again appears to be essentially the same in the vaccinated as in the nonvaccinated series.

TABLE 6.—*Total Muscle Groups by Severity of Paralysis at Hospital Discharge and at Follow-up in Nonvaccinated and Vaccinated Poliomyelitis Patients, Age 0 to 14, Los Angeles County General Hospital, 1955-1956*

Severity at Discharge	Total Muscle Groups*	Severity at Follow-up: Non-paralytic	Slight	Mod-erate	Marked
A. 68 NONVACCINATED PATIENTS					
Total muscle groups	1,156	1,108	28	18	2
Nonparalytic	915	905	6	4	....
Slight	176	165	7	4	....
Moderate	56	38	8	9	1
Marked	9	....	7	1	1
B. 62 VACCINATED PATIENTS					
Total muscle groups	1,054	1,006	40	2	6
Nonparalytic	856	843	12	1	....
Slight	151	134	17	....	....
Moderate	39	28	10	1	....
Marked	8	1	1	....	6

*Seventeen muscle groups for each patient: Shoulder, elbow and wrist, right and left; hip, knee and ankle, right and left; back, neck, abdomen, muscles of respiration and the bulbar muscles.

TABLE 7.—*Average Number of Muscle Groups Involved at Hospital Discharge and at Follow-up by Severity of Paralysis at Discharge in Nonvaccinated and Vaccinated Poliomyelitis Patients, Age 0 to 14, Los Angeles County General Hospital, 1955-1956*

Severity at Discharge	Total* No. Cases	Average Number of Muscle Groups Involved: At Discharge	At Follow-up
A. NONVACCINATED PATIENTS			
Total cases	68	3.54	.71
Nonparalytic	23	.00	.04
Slight	25	3.44	.44
Moderate	15	6.93	1.00
Marked	5	10.20	4.20
B. VACCINATED PATIENTS			
Total cases	62	3.19	.77
Nonparalytic	24	.00	.12
Slight	26	3.58	.23
Moderate	9	7.22	2.00
Marked	3	13.33	7.00

*Seventeen muscle groups for each patient: Shoulder, elbow and wrist, right and left; hip, knee and ankle, right and left; back, neck, abdomen, muscles of respiration and the bulbar muscles.

COMMENT

There are obvious difficulties in making a precise separation of poliomyelitis cases into arbitrary classifications of severity. Nevertheless, in reported studies of vaccine effectiveness, whether a simple two-fold separation into paralytic and nonparalytic cases or a more definitive classification has been made, the vaccine has consistently appeared to effect a greater reduction in the more severe forms of illness. Thus, all studies have shown a pronounced decrease in paralytic incidence rates among vaccinated populations, whereas changes in nonparalytic rates have been variable and inconclusive.[4,8,10,13] In the 1954 field trials[4] it was further shown that the reduction in the incidence of mild spinal-paralytic poliomyelitis was less than the reduction in severe spinal-paralytic and bulbospinal incidence.

Since the present study deals with clinical observations on recognized cases rather than with attack rates, it does not take into account illnesses which were prevented as the result of vaccination. However, the observations on severity of paralysis in this study are remarkably similar to those in the vaccine field trials of 1954. Both studies show a disproportionately large number of nonparalytic and mild paralytic illnesses together with a reduction in the number of severe cases among vaccinated persons. These observations strongly suggest that vaccination did confer partial protection on these persons, but that the immunologic barrier to invasion of the central nervous system was incomplete. Whether acting at the sites of extraneural multiplication,[16] or suppressing viremia,[2] there was presumably sufficient antibody to retard invasion of the central nervous system. This view is supported by existing evidence that small or even undetectable amounts of antibody may have a modifying effect on severity.[6,19,20]

The preponderance of mild and nonparalytic illness among the vaccinated patients further suggests that partial protection conferred by the vaccine resulted in a shift of cases from the more severe range of severity to milder or nonparalytic disease. Such a shift would obscure the similar conversion of mild or nonparalytic illness to inapparent infection.[10] If this view is correct, it would explain the apparent lack of effectiveness of the vaccine in reducing the incidence of mild and nonparalytic cases. Undoubtedly, another contributing factor is the occurrence of illnesses in this category clinically diagnosed as poliomyelitis which are in fact due to other agents and hence not influenced by the Salk vaccine. Evidence thus far has not demonstrated that the Salk vaccine significantly retards the development of alimentary infections with poliovirus.[5,17]

The relationship of age to the severity of illness deserves special mention. The data presented in the present study, showing a higher proportion of paralytic cases among children under five years of age. are in keeping with similar observations in California and other states.[7,14] The present study further indicates that the degree of paralysis in the age group under five years is more severe than in older children. This finding is believed to reflect the lack of previous immunizing exposure to poliovirus during the first few years of life. Experimental evidence suggests that the incidence of paralysis may be influenced by previous infection with heterotypic strains. Sabin and co-workers[15] noted a decrease in severity of disease when cynomologous monkeys, possessing Type 2 antibodies, were given virulent Type 1. Mahoney strain, by mouth. None of the animals with Type 2 antibodies was protected against infection with Type 1 virus; all developed antibodies, but the infection was milder. From these data, Horstmann[7] reasoned that the higher percentage of paralytic poliomyelitis in children under age five may indicate the large number of those for whom the clinical attack represents the first infection with any type. Thus, the higher incidence of nonparalytic cases in older children may be correlated with the possession of heterologous antibodies which modify the response to infection. Other studies have demonstrated serological evidence of antigenic crossing between types of virus.[5,9,11]

The observation that cases in vaccinated persons also follow a pattern of severity in relation to age, quite similar to that among nonvaccinated cases, is in keeping with serological evidence that response to vaccination is conditioned by previous "immune experience."[5,21] The outcome of infection in a vaccinated person is therefore commensurate with his age group and amount of antibody gained from vaccination. It is noteworthy that several studies of antibody response have shown that even among children with no evidence of prior immunity, good antibody levels are almost uniformly demonstrable following a "booster" inoculation seven months or more after primary vaccination.[3,20,21] It might be expected, then, that the full course of three inoculations of Salk vaccine would largely mitigate the age difference in response to vaccination.

Factors responsible for the increase in severity of poliomyelitis among young adults are not well understood, but heavy exposure of parents to infection from their children and the influence of pregnancy on susceptibility appear to play some role.[7,12] In view of the high degree of effectiveness of even a single inoculation in older children, it seems a reasonable speculation that excellent protection will be afforded by the vaccination of adults, most of whom already have some degree of latent immunity.

The examinations during convalescence in this study showed a remarkable extent of recovery in a high proportion of the cases of poliomyelitis in school-age children. Within the same category of severity, the extent of recovery appeared to be essentially the same for nonvaccinated as for vaccinated patients. In both series of patients, approximately 90 per cent of muscle groups originally graded as having "slight" paralysis had no demonstrable weakness on follow-up examination, whereas muscle groups with moderate and marked paralysis usually had some residual weakness. It seems reasonable to conclude that since vaccinated patients had disease that was predominantly in the milder categories at the outset, they generally had less residual impairment than nonvaccinated patients of similar age.

CONCLUSION

Since a much higher proportion of the vaccinated patients had only slight or no paralysis at discharge. it may be concluded that vaccinated patients generally had a more complete recovery than nonvaccinated patients of similar age. Assessment of the ultimate benefits of vaccination must take into account both the prevention of illness and the reduction in severity of cases which do occur after vaccination.

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The authors gratefully acknowledge the statistical assistance given by Sylvia Hay, public health analyst, State Department of Public Health, and the helpful suggestions and support given by the staff of the Department of Preventive Medicine and Public Health, University of California at Los Angeles Medical School, Los Angeles 24.

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GENERAL PRACTICE

As a starting point for its consideration of the question of the advisability of general practice as a foundation for specialization, the A.M.A. Committee on General Practice Prior to Specialization adopted the following definition:

"General practice is that area of medical care performed by a doctor of medicine in those fields of diagnosis and therapy commensurate with his professional competence, assuming a total continuing responsibility for the health of the individual or the family as a unit."

The definition was contained in the Committee's report to the A.M.A. Board of Trustees, May 20, 1957.

Postoperative - Postanesthetic Recovery Rooms

A Report on Three Years of Experience

MILTON J. MARMER, *M.D.*, Los Angeles

• An analysis of the three-year experience of the recovery room at the Cedars of Lebanon Hospital emphasized the importance of this phase of postoperative care. Closer observation and supervision of the patient is provided during a critical period, and specialized nursing care is constantly available. Supportive and corrective therapy can be carried out immediately by the cooperative efforts of the anesthesiologist and surgeon, who are close by. The completely equipped and properly staffed recovery room is the best assurance for reducing postoperative morbidity and mortality.

One of the most important adjuncts to the surgical management of patients evolved in recent years is the postoperative-postanesthetic recovery room. It saves lives, time and money.[2] There an unconscious patient is treated until consciousness is regained and the functions of the cardiovascular and pulmonary systems are maintained or returned to normal. The results of the most skillful surgical operation can be endangered by lack of proper care in the immediate postanesthetic-postoperative period.

It is not necessary for every patient to be sent to the recovery room after operation. Patients undergoing minor procedures under local anesthesia do not often need the services supplied in a recovery room if they are awake and the anesthetic agent used has caused no reaction, but the final decision should be made by the surgeon. After major operations or when general anesthesia is employed the patient should be sent to the recovery room, except when isolationary precautions must be observed, as in the presence of active tuberculosis, for example.

The staff of the anesthesiology department must bear the primary responsibility for the overall management and supervision of the recovery room, although immediate postoperative management of the patient, of course, is shared by the anesthesiologist and the surgeon. It is in the management of patients in the recovery room that the role of the anesthesiologist as clinical physiologist and pharmacologist is made most manifest.

Nursing care is of paramount importance.[1] The nurse who works in the recovery room must have excellent judgment, keen powers of observation and an even temperament, for she is called on frequently to make demanding decisions in emergencies. Such a nurse must be able to estimate accurately a patient's status and must constantly be on the alert for changes in his condition. She must be able to aspirate material from the respiratory passages skillfully and to start intravenous infusions. The greatest asset of the nurse in the recovery room is her awareness of her own limitations. Knowing when to call the physician is essential. It is better to have a nurse call for help more often than is necessary than to have her fail to do so to obviate danger or unnecessary suffering for a patient.[3] Any problem which arises must immediately be brought to the attention of the anesthesiologist, and all instructions relevant to the care of the patient which the anesthesiologist issues must be accurately carried out.

DESIGN AND EQUIPMENT

The recovery room at the Cedars of Lebanon Hospital, which was established in November, 1953, is ideally located, equipped and staffed. Its location adjacent to the suite of operating rooms makes for minimal transportation of patients and ready availability of both the anesthesiologist and the surgeon.

The recovery ward is spacious, comprising 12 individual cubicles with enough room between them for easy maneuverability. The cubicles can be separated from one another by curtains to afford privacy when needed. The room is air-conditioned and has adequate lighting and plumbing facilities. There is unobstructed view of patients from the nurses' desk and work stations. An intercommunication system connects the recovery room with the operating and dressing rooms. Apparatus for applying suction and for administering oxygen, which is piped in from a central supply, is recessed in the wall and is readily available for each patient. A tank of carbon dioxide is at each bedside.

Young children are brought to the recovery room in cribs and are kept in a separate area. Older children and adults are admitted on recovery stretchers, which are special carts with wheels that have locking brakes. The mattresses are of moisture proof ma-

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Submitted January 2, 1957.

terial, and two safety belts are provided on each stretcher. The carts have removable side rails which can be stored in the lower framework when not in use, a standard for supporting apparatus used for administration of fluids intravenously, a tilting device to use in changing the position of the patient, and a storage shelf. The doors of the recovery room are wide enough to admit a bed with siderails so that a patient can be admitted in his own bed if necessary.

The recovery room is well supplied with medicines and equipment. All intravenous solutions, including blood plasma and plasma volume expanders are available. Drugs needed for resuscitation—stimulants, antihistaminics, vasopressors, corticoids, antispasmodics and anticholinergics—as well as sedatives and narcotics are at hand. Narcotics and narcotic antagonists are kept in a separate locked cabinet. A small refrigerator is provided for storing antibiotics and other drugs which require refrigeration. Airways, laryngoscopes, endotracheal tubes of various sizes, and Levine tubes and other tubes for gastric intubation are easily accessible. Equipment includes sterile trays for use in vascular cut-down, tracheotomy, nasal packing, catheterization, surgical dressing and dealing with cardiac arrest. Nesbitt-Young irrigating sets and other equipment for urinary bladder drainage are in readiness. A Kreiselman manual resuscitator is kept at hand.

RECOVERY ROOM PROCEDURE

As soon as a patient enters the recovery room, details of the anesthetic and surgical procedures are recorded in the recovery room chart and the nurse is told what occurred in the operating room and what may be anticipated in the recovery ward. The nurse observes the pulse, blood pressure and respirations on admission and at intervals of ten or fifteen minutes thereafter until they are stabilized. She makes sure that the patient is in proper position, administers oxygen and carbon dioxide on the physician's request and carries out oral or pharyngeal aspiration when necessary, makes frequent inspection of any infusion apparatus that is being used, and periodically examines surgical dressings for undue or excessive bleeding. The surgeon's preference for a specific procedure—for example, the type of drainage of the urinary bladder—is always followed. If an endotracheal tube is left in place, it is generally removed by the anesthesiologist unless he specifies otherwise.

No visiting is permitted in the recovery room, which is open from 7:00 a.m. to 6:00 p.m. The patient is returned to his room or ward on one of the special carts previously mentioned. Since the patient is kept in the recovery room until he regains consciousness and his condition is satisfactory, it is not

Resume of Data on Operation of Recovery Room in Cedars of Lebanon Hospital for Three-year Period

Year	No. of Patients Admitted to Recovery Room	No. of Hours Spent in Nursing Care
1953 (Nov.-Dec.)	529	842
1954 (Jan.-Dec.)	4568	7946
1955 (Jan.-Dec.)	5249	8990
1956 (Jan.-Nov.)	4465	8932
Total for three years	14,811	26,910

Summary of Selected Recovery Room Data, by Years

1954 Average time for all patients: 1 hour, 44 minutes.
Shortest time in recovery room: 5 minutes.
Longest time in recovery room: 8 hours, 35 minutes (transurethral prostatectomy).
Deaths: 2.

1955 Average time for all patients: 1 hour, 42 minutes.
Shortest time in recovery room: 5 minutes.
Longest time in recovery room: 7 hours, 55 minutes (suprapubic prostatectomy), (radical neck dissection).
Deaths: 1.

1956 Average time for all patients: 2 hours.
Shortest time in recovery room: 10 minutes.
Longest time in recovery room: 11 hours, 30 minutes (ventricular septal defect repair).
Deaths: 2.

Data on Cases in Which Patient Died in Recovery Room

Deaths

1954 (1) Nephrectomy. Spinal anesthesia. Patient died 2 hours, 40 minutes after arrival. Coronary thrombosis.

1954 (2) Mitral commissurotomy. Endotracheal anesthesia. Cardiac arrest. Thoracotomy and cardiac massage done in recovery room.

1955 (1) Thyroidectomy. Endotracheal anesthesia. Coronary thrombosis. Two hours after admission.

1956 (1) Septal defect repair. Endotracheal anesthesia. Death 4 hours, 30 minutes after admission.

1956 (2) Septal defect repair. Endotracheal anesthesia. Death 11 hours, 30 minutes after admission.

Other Unusual Incidents in Recovery Room

1955

Jan. Tonsillectomy and adenoidectomy. Returned to operating room for control of postoperative hemorrhage.
Transurethral prostatectomy. Returned to operating room for control of postoperative hemorrhage.

Mar. Dilatation and curettement. Returned to operating room for hysterectomy because of positive biopsy.

May Mediastinal tumor, hemorrhage, returned to operating room.

Oct. Tracheotomy in recovery room. (Bronchoscopy—cardiac arrest in operating room.)

Nov. Adult tonsillectomy and adenoidectomy. Hemorrhage; packing done in recovery room. Patient taken to operating room. In recovery room 3 hours, 40 minutes.

1956

Feb. Bronchoscopy performed. (Segmental resection of lung—respiratory distress.)

June Thoracentesis performed. (Patient had colon resection, cardiac arrest in operating room.)

July Narcotic poisoning treated. Patient kept in recovery room 2 hours, 45 minutes preoperatively because of profound respiratory depression due to overdose of dilaudid. Resuscitated. After improvement, taken to operating room for major operation.

Aug. Transurethral prostatectomy. Returned to surgery for control of hemorrhage.
Dilatation and curettement. Returned to surgery for control of hemorrhage.

necessary for a physician to be present at the time of transfer.

Data on three years of experience with a recovery room at Cedars of Lebanon Hospital are given in the accompanying table.

CONCLUSIONS

The efficiency of a recovery room depends on close cooperation between members of the anesthesiologic, surgical and nursing staffs; and emphasis must be placed on the importance of utilizing highly specialized and skilled nurses. The facilities, medicines and equipment of the recovery room are of prime importance in making sure that the care of patients in the immediate postanesthetic and postoperative period is adequate.

The three years' experience with the recovery room at the Cedars of Lebanon Hospital has underlined the value and importance of this ward in the care of patients during the crucial immediate postoperative postanesthetic period.

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For Your Patients—A number of specialists have asked that a slight copy change be made in Message No. 1. This has been done and now Message No. 1A is available as well as Message No. 1.

A Personal Message to YOU:

I consider it both a privilege and a matter of duty to be available in case of an emergency. However, you can understand that there are times when I may not be on call. I might be at a medical meeting outside the city, on a bit of a vacation—or even ill.

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Symposium on Pain

Part III — Headache Problems

Introduction by
ROBERT B. AIRD, M.D., San Francisco

THE THIRD PORTION of the *Symposium on Pain* is devoted to the problem of Headache for two reasons. In the first place, headaches and head pains are extremely common and complicate many other conditions dealt with by almost all practicing physicians. Advances in this field now make it possible for us to recognize the principal types of headaches and to think more rationally about the management of them. This, then, is an important and rewarding subject to present as one aspect of a symposium on pain.

The second reason for presenting this subject is to take advantage of the presence of our two guest speakers. Both are recognized authorities on the subject of headaches. Dr. Houston Merritt is professor of neurology at the Columbia University College of Physicians and Surgeons and director of the Neurological Services of the New York Neurological Institute. Dr. Arnold Friedman is associate professor of clinical neurology at the same institution and physician-in-charge of the Headache Unit of Montefiore Hospital in New York City.

Dr. Merritt's paper deals with the basic neuroanatomical and neurophysiological information on pain-sensitive structures of the head, the principal etiological mechanisms of headache, clinical classifications, and methods of study which must be understood if one is to treat patients with this complaint and manage their problems.

Dr. Friedman follows with a more detailed consideration of the two principal types of chronic, recurring headache—migraine and tension headaches. Not only are these by all odds the most common forms of headache, but they also are the most important from the standpoint of general physicians and nonneurologically trained specialists.

This concludes a symposium in three parts. Part I appeared in CALIFORNIA MEDICINE in May, Part II in June.

Sponsored by the Department of Neurology and the Biomechanics Group of the Department of Orthopedic Surgery, University of California School of Medicine, and Medical Extension, San Francisco 22.

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Etiological Mechanisms and Classifications of Headaches

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HEADACHE is one of the most common symptoms to which man is subject. There are few persons who have not had a headache on one or many occasions and some are subject to recurrent attacks of headache throughout life. Headaches may occur without any organic pathologic change, or they may be a manifestation of serious disease. In the majority of patients headaches are transient and can be related to some febrile episode or dietary indiscretion. The situation is different, however, when the headaches are chronic or recur over a period of months or years. It is important to determine by a thorough study in each patient the underlying cause of the headache and to correct any serious pathologic condition that may be present.

Headache is a common manifestation of intracranial tumors, intracranial infection, head trauma, febrile illness, arterial hypertension, cerebral arteriosclerosis, and cerebral anoxia or asphyxia. Other causes of chronic headaches are diseases of the eyes, nose, throat, ears and teeth. Constipation and gastrointestinal disturbances are reputed to be a common cause, but their importance has been greatly exaggerated. All these conditions account for only a small percentage of patients who consult a physician for chronic recurring headache. In the remainder, a thorough study will not reveal significant abnormalities. In the majority of this large idiopathic group, the headache falls into one or the other of two clini-

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cal classifications—either migraine or the psychological headaches called tension headaches.

All the tissues covering the scalp, including the skin, the bone, subcutaneous tissues, mucous membranes, and the sensory appendages of the head, are sensitive to painful stimuli. Within the cranium, the large intracranial venous sinuses and their tributaries are sensitive to pain. The dura mater at the base of the skull is sensitive. The dural arteries, including the anterior and middle meningeal, and the large arteries at the base of the brain around the circle of Willis are sensitive to painful stimuli. In addition, irritation of the sensory nerves, the fifth, ninth, and tenth cranial nerves, and the upper cervical nerves may be the source of pain. It is interesting to note that the substance of the brain, the small arteries on the surface of the cortex and the dura over the convexity of the brain are all relatively insensitive to pain.

Stimulation of structures in the anterior part of the head and above the tentorium intracranially will give pain that is felt in the distribution of the fifth cranial nerve. Stimulation of structures in the posterior part of the head and below the tentorium will give pain that is transmitted by the ninth, tenth and upper cervical nerves.

There are six basic mechanisms of headache: Traction on the veins that pass through the venous sinuses from the surface of the brain and displacement of the great venous sinuses; traction on the meningeal arteries, that is, the middle meningeal and anterior meningeal, but not the meningeal arteries on the surface of the cortex; traction on or distention of the arteries at the base of the brain around the circle of Willis; inflammation in or about any of the pain-sensitive structures of the head, including the arteries and the nerves; and direct pressure on the cranial and cervical nerves which contain the pain-sensitive fibers from the head. One or more of these mechanisms is operative in any given patient with headaches. Dr. Friedman will discuss the mechanism of pain production by dilatation and pulsation of arteries.

Headaches due to disease of intracranial structures, such as tumors, aneurysms, hemorrhage, and meningitis, are usually caused by traction and displacement of the pain-sensitive intracranial structures—chiefly the arteries, veins and cranial nerves. The headaches associated with fever, hypertension, anoxia, asphyxia, inhalation of nitrites and reaction to foreign proteins are usually due to distention and dilatation of intracranial arteries. It is interesting to note that the intracranial pressure itself is not a cause of pain or headache. You can raise the intracranial pressure to 600, 700 or 800 millimeters of water and the patient will not have headaches unless there is some other change present.

Diseases of the intracranial structures which may give rise to head pain and headache include errors of refraction in the eye, and inflammatory processes in the eye, in the nasal sinuses, in the teeth or in the ear. The pain and headache in these conditions are usually due to stimulation of pain-sensitive endings in the cranial or upper cervical nerves. Ophthalmologists see a great many patients with headaches and head pains. However, when you ask an ophthalmologist, “How many patients come to you with complaint of chronic headache?”, most of them will say, “Very few.” They will say that headache and head pains associated with eye disease and eye fatigue may occur when there is difficulty in binocular vision or when there are refractive errors of a moderate degree. When the refractive errors are of a high degree, usually there is not much headache. This is because the patient tries to compensate for a minor degree of refractive error and headache ensues. If the refractive error is great, no effort on the patient’s part will correct it; hence he will not attempt to correct the error and so does not develop headache. Increased intraocular tension and glaucoma in the acute stage causes a very acute pain in the eye; in the chronic stage it may cause pain that is indistinguishable from migraine.

In many patients, headaches are a manifestation of a psychological disturbance. These headaches are due in part to vasodilatation and in part to stimulation of the pain endings of the cervical nerves, following sustained contraction of the cervical muscles. Another type that may be a part of a conversion syndrome, I believe is quite rare.

Headaches are a common sequel of minor or severe injuries to the head. It would appear that the incidence of headaches in patients with minor head injury is just as high as it is in those patients who have severe injury of the head, perhaps higher. Patients with injury to the head have a train of symptoms, of which headache is only one, although usually the most prominent. They also complain of dizziness with change of posture, of nervousness, of irritability, of increased sweating, of inability to concentrate and of malaise in general. The headaches in these patients often last for a period of two or three months and then clear up. The duration of the headaches may be prolonged by a number of factors—for example, the attention the physician pays to the patient’s symptoms and pending litigation. One physician recently told me that she was able to reduce the period of posttraumatic headaches by telling the patients that they did not need to keep their headaches until their claims came to trial. She assured the patients that she would testify to the severity of their head injury and to the fact that they had suffered from headaches in the period following the injury. The symptoms associated with posttraumatic syndrome appear to be closely tied up with the fact that injury to the head is a matter of great significance to most people; they associate it with fears of insanity and fears of developing brain tumors. A great deal of reassurance is needed to combat these fears. Undue emphasis on the severity of the injury should be avoided. The mechanism of the production of head pain in these patients, in whom the pain is unduly prolonged and in whom no organic factors can be found, is probably similar to that in patients in whom headache is associated with emotional tension.

Determining the cause of headache is often difficult and may require a great deal of skill on the part of the physician. The most important part of the study is the history given by the patient. The history should include the patient's age at the onset of the headache, the location of the pain, the type of pain, the frequency of occurrence, the influence of various precipitating factors, and also the factors that tend to ameliorate the headache, including various forms of medical therapy. The patient should have a thorough physical and neurological examination, including a careful examination of the eye and of the fundus of the eye, and tests of the visual acuity and visual fields. A careful psychological evaluation of each patient should be obtained. This can be done in part while taking the history and doing the examination. Routine examination of the blood, including count of cells and chemical determinations, and urinalysis should be performed. All patients with chronic headache should have x-ray studies of the skull. Sometimes abnormalities will be found in x-ray films which were not suspected from the history or the examinations.

Electroencephalography, available in most communities now, is often a valuable adjunct to diagnosis and is a nontraumatic procedure. Examination of the cerebrospinal fluid should be made when indicated. Special diagnostic tests such as cerebral angiography, ventriculography or pneumoencephalography should be reserved for cases in which an expanding intracranial lesion that may necessitate surgical therapy is suspected.

In the history given by the patient, the description of the pain—the location, duration, intensity and the like—is sometimes of value in determining the cause, but it should be emphasized that there are no features that are pathognomonic of any one morbid condition. Recurrent headaches which are associated with diseases of the intracranial or extracranial structures are characterized by remissions lasting for hours or days. Chronic headaches which are present 24 hours of the day and seven days of the week are practically always of psychological origin. These statements are subject to exception.

Headache associated with expanding intracranial lesions is usually of a steady aching quality and moderately severe. It tends to be intermittent but is usually present for some hours of every day. Early in the course of the disease, the pain may be localized to the region of the tumor. When a tumor is in the cerebral hemisphere, the headache may be in the frontal or parietal region and on the same side of the head. If the tumor is in the posterior fossa, the headache is likely to be in the occipital region. With progress of the disease, the headache tends to become generalized and the localizing value of the pain is lost.

The headaches of fever, migraine and arterial hypertension are usually throbbing in character and may occur in any portion of the head. In migraine, the pain initially is throbbing, but later may become chronic, dull and steady. Migraine headaches initially are confined to one side of the head, but usually if the headache persists for a number of hours it tends to become generalized. Hemicrania that occurs on the same side of the head in every attack should raise a warning flag with regard to the diagnosis of migraine. Migraine is a functional disorder and it is most common for the headache to shift from side to side. If the headache is always on the same side of the head, the possibility of an organic lesion must be considered, and not infrequently this is an angiomatous malformation. This is one of the conditions that often gives rise to chronic recurrent headaches that are unilateral and that mimic migraine. Patients with aneurysms at the base of the brain likewise may have unilateral attacks of headache. More often it is a pain rather than a headache, but patients with proved aneurysms have given histories of recurrent attacks of headache that have been diagnosed in the past as migraine.

The severity of migraine headaches is quite variable. Some of them may last for only a few hours and some may last 24 to 48 hours or longer. The frequency is also subject to a great deal of variation. Some patients may have only one or two attacks during their lifetime; some will have them a few times a year; and some will have them several or many times a week. They tend to be most frequent during periods of emotional stress or when the patient is coping with a difficult life situation. Other features of migraine will be mentioned by Dr. Friedman.

The headaches of emotional tension, or the so-called tension headaches, commonly start in the occipital region and spread from there to the frontal region. They are often described by the patient as a feeling of pressure in the back of the head or on the forehead. The patient may complain of a feeling of pressure within the skull, or say, "I have a feeling as if there is a tight vise around my head." When you hear a complaint of that kind, you can almost be certain that you are dealing with a tension headache, a psychologically induced headache. This, of course, is subject to exceptions. Dr. Friedman will perhaps remember that we saw, some ten years ago, a nurse who had headache of this type but in whom a brain tumor developed. It is probable that the brain tumor was not the cause of the headaches, which she had been having for many years, but that we were dealing with a patient who had tension headaches and who later happened to have a brain tumor.

In summary, a great variety of morbid conditions, both intracranial and extracranial, can cause pain in the head and produce headaches, but chronic, recurring headaches are usually due to migraine or psychological tension headaches. It is possible that the mechanism of the two are closely related.

Migraine and Tension Headaches

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HEADACHE IS ONE of the most common complaints of modern man. It has been estimated that 12 per cent of the urban population of the United States have chronic headache. Because in the vast majority of these persons the symptoms are either due to migraine or are primarily associated with an emotional disturbance (tension headache), discussion in this presentation will be limited to headaches of these two types.

MIGRAINE

Migraine is a symptom complex characterized by periodic attacks of headache, with or without associated symptoms, in a person who has a background of well-being between attacks. Upon analysis of one thousand patients with migraine the following characteristics were noted: A history of migraine in the family occurred in 65 per cent. Seventy per cent were females, or a ratio of more than two to one. The headaches began before the age of 20 in over half of the patients; onset after age 40 was exceptional. The attacks occurred less than once weekly in 60 per cent of the patients. Prodromata were present in three out of four patients, and the quality of the headache was throbbing in 80 per cent.

Cause

It is difficult to explain all cases of migraine on any single etiological basis. Most observers have emphasized heredity as an important factor in migraine. There is no evidence, however, with regard to the exact mode of this inheritance, nor is there any evidence as to what specific abnormality may be inherited. In some instances, and perhaps to a certain degree in all cases, there may be an inherent functional instability of the autonomic, endocrine, vascular or enzyme systems. There is also a real possibility that migraine occurs on a familial basis and is related to environmental rather than hereditary factors.

From their investigations, Jimenez Diaz and his associates concluded that substances of an acetylcholine type were released in excess in migraine patients during stress. They postulated that the normal choline acetylase system is different in these patients.

Many patients with migraine undergo changes in fluid balance and fluid distribution during the headache. Such changes are both local and general. A number of investigators have reported that water, sodium, potassium and creatinine are significantly decreased in excretion prior to and during the early phases of the migraine attack. Increased rates of excretion of these substances were usual as the headache subsided. Studies by Schottstaedt and Wolff, as well as studies in which I have taken part, indicate that fluid and electrolyte changes are not related causally to the onset, intensity or duration of the migraine attack, but are manifestations of bodily changes accompanying adaptation reactions during stressful periods.

It has been emphasized that the frequent association of migraine with puberty, menstruation and menopause indicates gonadal etiology. There is not, however, any valid physiologic or biochemical data to support this hypothesis.

A relationship between migraine and allergic sensitivity has been suggested for over a hundred years. There is no doubt that headaches may occasionally be precipitated by allergens in certain susceptible persons, but investigations of the last few years have indicated the role of allergic reaction as the cause of migraine has been overestimated. Theoretically allergy offers many hopeful and suggestive possibilities as an etiological agent in migraine, but substantial proofs are yet too few and inconclusive to warrant much encouragement.

The importance of psychologic factors in migraine has long been recognized. Studies indicate that in a great majority of patients with migraine there is a "personality pattern," one of the features of which

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is an abnormally strong reaction to environmental stress. It is doubtful whether psychologic mechanisms alone can be responsible for the chain of physiologic events noted in the migraine attack without some underlying lability in the physiology of these patients.

From available information we may postulate that patients with migraine have inherited a neurophysiologic system which is limited in its capacity to handle a variety of stresses. Furthermore, they have an insecure personality pattern which interferes with their adjustment to their environment. This sets a pattern of function which the limited physiologic capacity of the individual is unable to stabilize, resulting in cranial vascular changes which produce headache.

Mechanism

The attack consists of three distinct vascular changes. The prodromal or aura stage is associated with vasoconstriction of the intracranial arteries and clinical phenomena, such as scotomata, hemianopsia, paresthesia and depression. The second phase is associated with vasodilatation, at which time the cranial vessels have altered sensitivity and increased amplitude of pulsation. It is hypothecated that the sensitivity of the blood vessels is due to local vascular changes, particularly in the arterioles and capillaries, which result in the accumulation of fluid and a substance in the tissues that lowers the pain threshold. The pain at this stage is usually throbbing and is aggravated by anything that raises the venous pressure, such as stooping or straining. Associated symptoms are common and include anorexia, nausea, vomiting, diarrhea, hyperhydrosis and other signs of autonomic nervous system instability. In the third phase there is edema of the affected vessels, which also become hard, tender and swollen. The head pain at this stage is a steady ache. During or following these stages there may be contraction of the neck muscles (and muscular contraction pain may develop). This spasm of the muscles is a reaction to the initial pain and may outlast it.

Considerable attention has been given to the psychological factors in migraine attack. Early reports in the literature emphasized that migraine patients were psychologically stable between attacks and that the emotional storm occurred only after vascular changes had occurred. In recent years studies have indicated that many patients with migraine are meticulous, neat in appearance, rigid in their thinking and excessively aggressive toward their environment. It is often noted that in their earlier life they had considerable insecurity with resulting tensions, which are manifested in inflexibility, overconscientiousness, meticulousness, perfectionism and resentment. My studies, however, have indicated that there is little evidence of specificity of the precipitating psychodynamic factors. Not all patients with migraine are compulsive, perfectionistic or rigid. Repressed hostility is an extremely common factor in persons who do not have migraine. Nevertheless, psychological factors play an important part in the dynamic mechanism of a migraine attack, and an understanding of these underlying psychologic mechanisms is important in the management of the problem.

Diagnosis

Diagnosis of migraine is usually made from the history. However, a detailed physical and neurological examination is necessary for each patient. In an occasional case, special studies of the eye, nose and paranasal sinuses and tests for offending allergens are indicated. Routine laboratory studies such as examination of blood and urinalysis—although in most cases unrevealing—should be a part of the work-up. Roentgenograms of the skull and cervical spine, electroencephalograms and studies of visual fields may be necessary to exclude organic causes of headaches. In my experience provocative tests, such as giving nitroglycerine and histamine, are not of much value as a diagnostic aid.

Diagnostic manifestations of migraine include:

1. Recurrent throbbing headaches, usually unilateral at onset, occurring against a background of relative well-being.

2. Nausea, vomiting, and irritability occurring at the height of an attack.

3. Temporary visual disorders preceding the headache, including scintillating scotomata, photophobia, hemianopsia or blurred vision.

4. History of migraine in the immediate family.

5. Symptoms such as paresthesias, speech disorders, dizziness, sweating and other vasomotor disorders.

6. Relief by ergotamine.

7. Personality characteristics of inflexibility and shyness in childhood, giving rise to adult perfectionism, rigidity and resentment, ambitiousness and efficiency; a constitutional predisposition to sustained emotional states.

The clinical manifestations of migraine indicate widespread bodily disturbance. Although attention is usually first called to the headache, there are numerous other symptoms to be considered as part of the entire picture.

Treatment

The most commonly employed treatment of the migraine attack is, undoubtedly, the use of ergot preparations, particularly ergotamine tartrate. The value of this method has been confirmed by clinical evidence of its beneficial effects and experimental observations in the laboratory. Ergot was first employed for this purpose by Eulenburg as far back as 1873 and by Campbell in 1894. It was only, however, within recent years that careful studies by Wolff and others demonstrated that ergotamine acts by promoting vasoconstriction rather than vasodilatation, and that sympathetic blockade does not predominate. The benefit that follows the taking of ergotamine for an attack of migraine is probably due to the direct action of the substance on the smooth muscles of the blood vessels, producing a constriction of these vessels and a decrease in amplitude of pulsation. This is particularly noticeable in the circulation of the external carotid artery.

A combination of ergotamine tartrate and caffeine, which acts as a synergist to the ergot alkaloids, is the most effective medication for the treatment of a migraine attack. Rectal use of ergotamine has proved empirically to be most efficacious, especially when oral medication cannot be retained. More recently many forms of ergot derivatives have been made available as proprietary preparations incorporating antispasmodics, sedatives, central nervous system stimulants, antiemetics and so on. These preparations can be used to suit the individual patient's need.

Patients who tolerate ergotamine tartrate poorly can be given dihydroergotamine methanesulfonate (DHE-45) parenterally. To produce an equivalent therapeutic effect dihydroergotamine must be given in doses twice as great as those of ergotamine tartrate.

It is most important to administer these drugs early in the course of the attack and in adequate doses. The optimal time of administration is the prodromal period or at least immediately after the onset of the headache.

(Information as to dosage, side effects and contraindications in the use of the ergot preparations is readily available in the literature.)

Numerous vasodilators have been used in the prodromal stage (vasoconstrictor phase) in order to abort the attack, and in the headache stage (vasodilator phase) to lower the blood pressure sufficiently to reduce the arterial pulsations. Except for a few isolated cases, these preparations are of little value.

Analgesics and sedatives are sometimes indicated if the headache has been present long enough for edema to take place and the vessels to become firm and tortuous.

Prophylactic

It is well known that in most patients with migraine, suitable psychotherapy may be of great value in reducing the intensity and frequency of attacks and may even result in disappearance of attacks for a considerable time. The details of this kind of treatment will not be a part of this discussion.

Adequate relaxation, improvement in sleep and correction of any physiologic abnormalities are aids in reducing the frequency of the attacks. In a few cases there may be evidence that the precipitating mechanism is of an allergic, endocrine or "metabolic" nature, but these factors are too rare to have significant application to therapy. However, when an allergen is the cause, it should be removed or the patient desensitized. If the onset of migraine is associated with the menstrual period, the use of progesterone or testosterone, or both, may be helpful. In some patients a premenstrual diet that restricts the daily intake of salt, in addition to giving a diuretic, seems to be beneficial.

Drugs such as histamine or nicotinic acid are of no value. Sedatives to reduce emotional tension are limited in their usefulness. More recently we have used reserpine and chlorpromazine hydrochloride (thorazine) as interim treatment. In a small number of patients, the result is encouraging, but final conclusions are yet to be made.

TENSION HEADACHE

It has long been known that sustained contraction of the skeletal muscles about the head and neck is a frequent source of headache. Such headaches occur in association with a wide variety of other sources of head pain including migraine headache, hypertensive headache, and with inflammatory, degenerative, traumatic, and neoplastic diseases about the face, head, neck and cervical vertebrae. The most common cause of muscle spasm headache, however, is tension headache. Tension headache is that type of headache occurring in relation to constant or periodic emotional conflicts concerning which patients are usually partially aware. Reviewing the histories of one thousand patients with tension headache, it was noted that the majority were females (65 per cent). A family history of headache was present in 40 per cent of the patients. Those with daily headaches composed the largest group (30 per cent). The duration and location of the headaches were extremely variable. Prodromata occurred in only 10 per cent of cases.

Cause

Although the cause of tension headache is not known, there is relatively good evidence that such headaches are related to psychologic disturbances. Frequently in patients that I observed the fundamental psychic factors were largely unconscious, although most patients were aware of their anxiety.

Headache may also be brought on by environmental demands of an economic, social or physical nature that are beyond the capacity of the patient's personality. The most frequently observed conflicts in cases of tension headaches were those concerned with hostile and aggressive impulses of an intense and destructive nature.

Mechanism

In tension headaches muscular or vascular mechanisms may act independently or concomitantly. With muscle tension, sustained contraction of the skeletal muscles of the head and neck causes pain or dysesthesia in the neck and scalp. Associated with these muscular spasms may be ischemia, which could be a contributory or primary factor in the induction of pain. It has also been hypothecated that excessive concentration of potassium in muscle, from ischemia or sustained contraction, stimulates the chemoreceptors in the tissues. Another factor leading to the head pain may be a central spread of the excitatory effect of noxious stimulation of the soft tissues of the neck. This spread of pain is carried by the upper cervical nerves and may produce painful sensation in the forehead and face.

Two possibilities have been suggested to explain the mechanism of the pain projection from the cervical spine to the forehead and face. One involves irritation of the descending or spinal root of the trigeminal nerve with transmission of pain to the head and face, and the other pertains to pain which is sympathetic, caused by reflex stimulation.

Diagnostic manifestations of tension headache include:

1. No prodroma.
2. Bilateral nature of the headache (commonly occipital and frontal).
3. Variable in character (burning-pressing-throbbing).
4. Variable in frequency and duration (more constant than migraine).
5. Associated symptoms — various — including anxiety, nausea, and fatigue.

Tension headache must be differentiated from migraine and from headaches associated with intracranial lesions, cervical disc disease, osteoarthritis and spinal cord tumor.

Treatment

1. *Symptomatic.* Symptomatic relief from tension headache is secured by drug therapy. The treatment of tension headache is nonspecific, but the purpose of therapy is to relieve tension and raise the pain threshold. This is best accomplished by use of an analgesic-sedative combination. Such a combination should be one that acts with minimal side effects, allowing the patient to maintain environmental relationships, and does not become a problem because of possible addiction or the development of tolerance.

2. *Prophylactic.* Control of tension headaches can best be accomplished by use of psychotherapy, for this is the only method in which the patient's emotional conflicts can be resolved.

Sedatives, such as the barbiturates, and analgesics afford only temporary relief. Furthermore, the side effects curtail prolonged use. More recently we have used reserpine, chlorpromazine and meprobamate in patients with tension headaches. Improvement has been noted in some cases, but the results are preliminary and not conclusive.

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Cosmetic Rhinoplasty

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• Rhinoplasty is safe, relatively painless and, if patients are carefully selected, quite successful. Psychological and personal benefits amply justify the procedure.

Frequent indications are feelings of social rejection or ridicule and racial discrimination. Psychoneurotic patients with severe complexes, however, are poor subjects for rhinoplasty and should not be operated upon. It is doubtful that rhinoplasty grossly changes the physiologic integrity of the nose.

Psychological trauma to the patient during hospitalization is to be avoided, sedation properly gauged for each patient, and complete block anesthesia used to preserve the cough reflex. The operation is brief and a small splint is worn for a few days. Complications are rare.

WHEN A THIRTY-SIX-YEAR-OLD man enters a plastic surgeon's office asking to have the shape of his nose altered, it is not particularly unusual. When this patient is noted to have been totally blind for the past 14 years, one begins to realize the tremendous emotional pressures which must build up in the patient's mind to lead him to seek plastic surgical help. (Advice and reassurance, without operation, aided this patient considerably.)

In another instance, a retired school teacher, a drably dressed woman sixty-five years of age, came to have an unsightly nose corrected. No amount of reassurance would dissuade her. "All my life," she said, "I've wanted to have my nose corrected, but have never had the time or funds." When asked why she wished to have a rhinoplastic operation, since she had led a successful life and made friends, she only replied that, "I have been self-conscious about my nose all my life and if you won't do the operation I'll find someone else who will." Operation was undertaken with great reluctance and misgiving. To the author's great surprise, correction seemed to give her new buoyance and interest in life. She began to dress smartly, took a South American cruise, and seemed completely gratified and happy with her "new" nasal appearance.

In another case, an emotionally stable retired business man of 55 years who had had three attacks of coronary occlusion, said, "I don't care if I don't live another six months. I've been kidded about my nose all my life and I want it corrected."

Thus it is seen that strong psychogenic motives frequently underlie the drive which will lead a patient to make supposed financial sacrifices and endure a supposedly painful procedure to better his or her appearance. Although the procedure of rhinoplasty is not very expensive and is almost painless in most instances, the patients have been given the idea by "friends" that it is fabulously expensive and excruciatingly painful. The fact that they seek help in spite of this, even before they learn the simple truths of the matter, still further points to the anxiety and mental anguish from which a patient can suffer because of an unsightly nose. Reviews of the psychiatric literature are exceptionally helpful in understanding the processes of motivation in these cases, but detailed psychoanalytic descriptions are beyond the scope of this paper.

In metropolitan areas, rhinoplasty has come to be taken as a matter of course by adolescents with im-

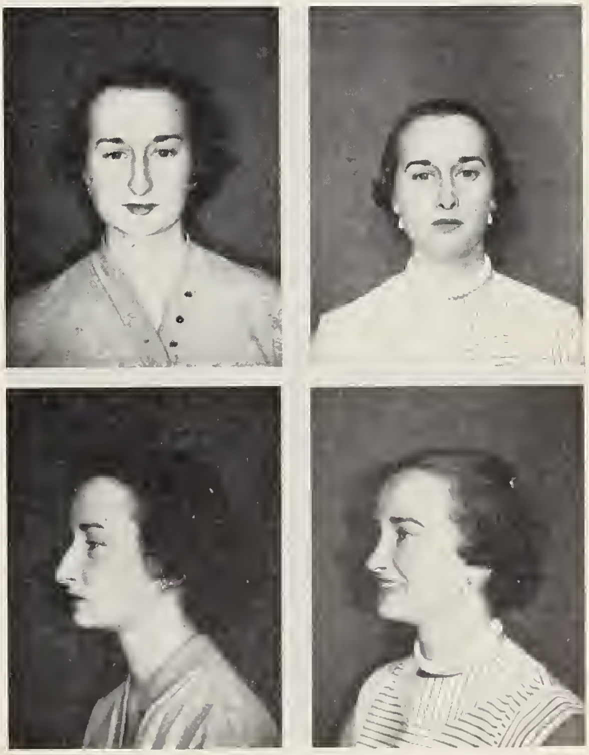

Figure 1.—Long nose with hanging septum and aquiline nasal hump. Correction produced striking physical and emotional benefits.

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Submitted September 25, 1956.

perfect noses, and by their parents. Such operations are no longer a matter for much comment; they are accepted as a matter of course like orthodontic procedures. The public at large as well as the medical profession have come to realize the value in our present day competitive society of rhinoplasty to provide a "normal" and attractive facial appearance. In rural areas, such operations still seem quite daring and often are undertaken only when personality defects become so pronounced that they override the negative attitude of friends and relatives and even family physicians. There are few elective procedures in medicine which are more universally successful, gratifying and helpful. With the steadily increasing number of well qualified plastic surgeons, most of whom are certified by the American Board of Plastic Surgery, there should be no excuse for depriving a patient of cosmetic rhinoplasty when needed.

HISTORY

Historically, the "Hindu method" and the well-known and ingenious reconstruction of the nose by Tagliacozzi are of tremendous interest, but have little to do with modern cosmetic rhinoplasty. This has its present day origins largely in the work of Jacques Joseph of Berlin, who published the result of his remarkable techniques in 1928. His works have been ruthlessly plagiarized and unduly disguised and complicated by numerous latter-day messiahs of rhinoplasty, each with his own following, but Joseph's planning and technique, in an even more simplified form, is the basic technique of today. Gillies, Esser, Lexer, and Blair, each prominent in his own country, contributed much, but the compendium of information supplied by Joseph in his well known book, *Nasenplastik,* has never been equaled. More recently, the excellent book by Brown and McDowell (C. V. Mosby and Company, St. Louis, 1951) summarized the progress of the intervening years and beautifully presents its authors' own techniques and accomplishments in this growing field of surgery.

INDICATIONS

Without going into the obvious importance of actual beauty and ugliness in inter-human relationships, it may be observed that deviations from an acceptable normal appearance of the nose are distressing to many persons. The three "R's" indicating operation (aside from crush injuries and other obvious gross abnormalities) are Rejection, Ridicule and Racial discrimination. The degree of emotional distress of the patient often depends on the degree of introspection in the personality involved. Large and even grotesque abnormalities are well tolerated or well compensated by some persons whereas

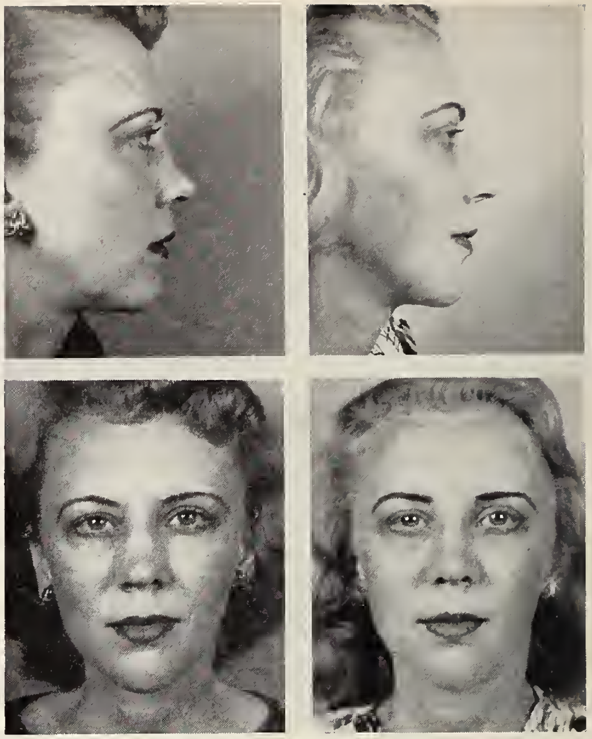

Figure 2.—Patient with posttraumatic depression proximal to the tip. Correction was accomplished without the use of cartilage implant.

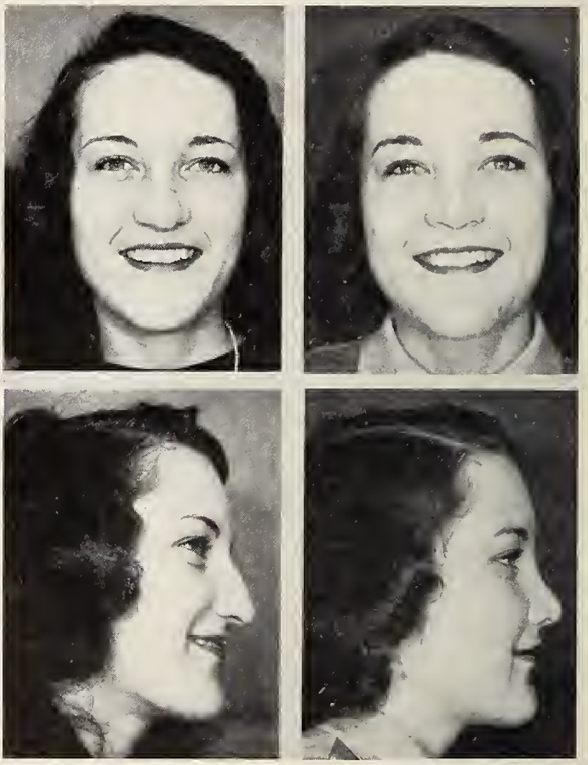

Figure 3.—A long nose with broad tip cartilages. Correction gave a much more pleasant appearance to the face.

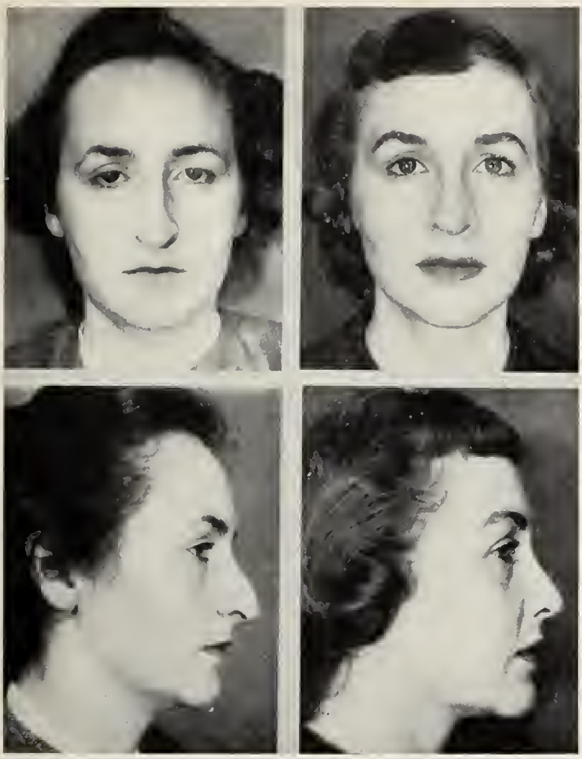

Figure 4.—Nose with dorsal septal convexity and broad tip cartilages. Correction gave a more even appearance to the features.

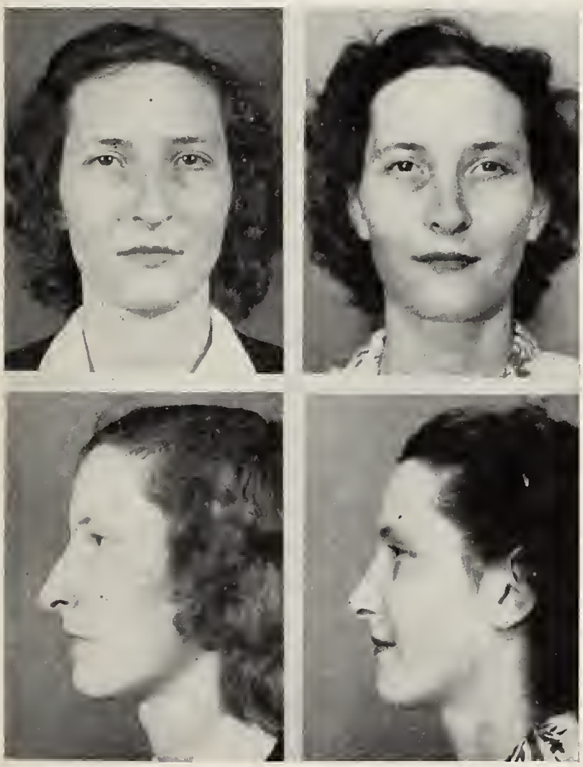

Figure 5.—Long pointed nose on a patient with otherwise even features. Postoperative appearance very satisfactory.

smaller abnormalities may completely upset the equilibrium of others. Whatever the distressing situation that leads the patient to inquire about the possibility of cosmetic correction of the nose, they now may be given sympathetic care and not be subject to cynicism or censure because of their inner feelings. The size of the visible defect is no indication of the size of the problem from the patient's point of view.

There are patients, however, with profound psychoneurotic fixation on the nose. In some cases even psychotic behavior is noted. A preliminary observation of the patient's personality traits while taking a history and doing routine physical examination, plus an element of good judgment based on reasoning and experience, often will indicate which patients are acceptable for operation. Operation on patients for whom operation is not firmly indicated—and technically advisable—leads to extreme unhappiness on the part of both patient and surgeon and should be strictly avoided. Exceedingly thick or heavy skin bordering on rhinophyma is a definite physical contraindication. Contraindications of any kind should be very carefully observed, since rhinoplasty is entirely elective.

Much has been written about the physiology and control of the air stream in the nose, with elaborate diagrams and postulations regarding the change and alteration of air swirls due to alterations in the structure of the external nose. Most of these postulates are fancy rather than fact. Altered function of the nose owing to obstruction is another matter. In such cases submucous resection either before or after rhinoplasty is indicated. The combination of minor submucous resection with rhinoplasty is permissible. The more conservative plastic surgeons feel that it is wiser and safer to do separate procedures, allowing about four weeks between operations, although some surgeons will occasionally do a radical septum operation and rhinoplasty at the same time. Results in these cases are usually inferior to a two-stage procedure.

Some improvement in cases of vasomotor rhinitis of the perennial type has been reported, but it is probable that this improvement is due more to the alteration of the psychogenic factors than to organic change.

THE TIME FOR OPERATION

In ordinary circumstances a rhinoplastic operation should not be done on patients less than 14 or 15 years of age to avoid interference with growth processes in nasal development. Exceptions are occasionally made for extreme degrees of obstruction or crushing.

Usually a patient undergoing a rhinoplastic procedure is in the hospital the night preceding and the night following operation. A nasal splint of light

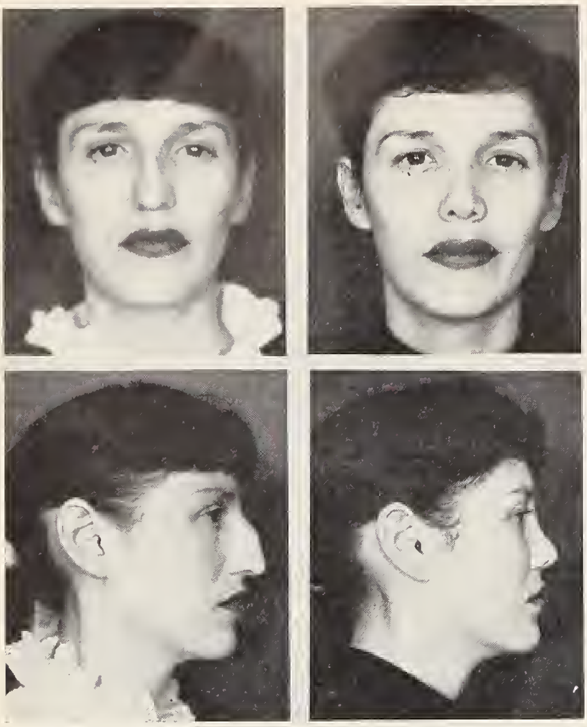

Figure 6.—Grotesque nasal abnormality. Correction improved entire appearance of face.

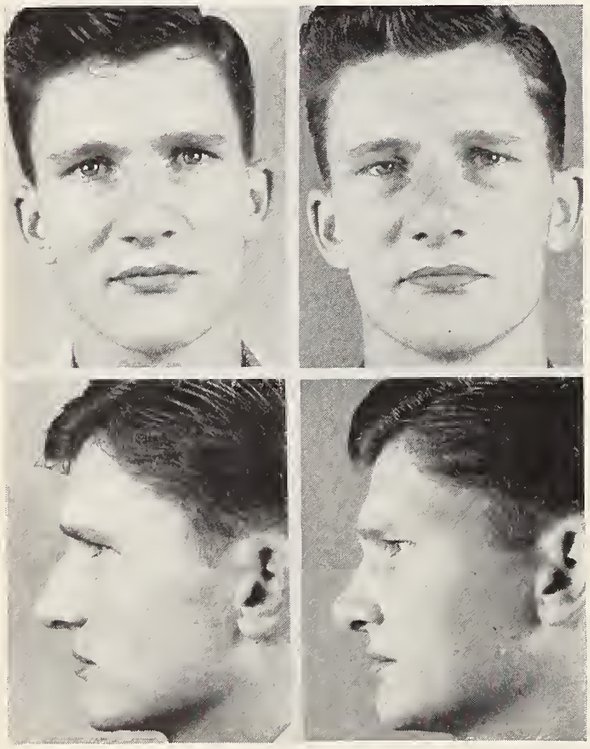

Figure 7.—A nasal hump and flaring nostrils which caused considerable emotional distress. Correction had striking benefit on personality.

aluminum is worn for three to five days. Periorbital ecchymosis, which commonly accompanies reconstructive nasal operations, usually lasts for a week or ten days. A patient is away from work approximately a week in most cases.

TECHNIQUE

Preoperative study of the patient entails a combination of sculptural judgment and consideration in each case of the limitation of the tissues, the bony configuration, and the resiliency of cartilage. The use of plaster models, making "before" and "after" drawings and carrying out measurements with a "profilometer" are unnecessary for the surgeon, although they may help to give confidence in the patient. A simple "rule of thumb"—the surgeon covering the side of the objectionable hump with his thumb and using his index finger to mask the elongated nasal tip while studying the nose from the side—is all that is necessary. Lateral deviations are easily determined by frontal views.

Preoperative preparation of the patient includes routine history-taking, physical examination and laboratory studies. Medication is given for sleep and to allay apprehension. In this regard, one should guard against the tendency of hospital personnel to frighten the patient with tales of "someone they knew who suffered terribly from a rhinoplasty" or someone "who regretted she had it done because no one recognized her afterward." Such tales have their origins in misconceptions in the press, movies and television, and perhaps in a sadistic desire on the part of some persons to frighten patients. Sometimes patients with severe complexes who have relatively small defects finally become courageous enough to enter the hospital for operation, then have their courage undone when someone on the nonprofessional staff, or perhaps even a nurse or intern says something like, "I don't see anything wrong with your nose."

Preoperative medication is usually a barbiturate plus a morphine-scopolamine injection a half hour before operation. The patient should be drowsy when brought to the operating room, but cough reflexes should be active. Xylocaine, 2 per cent, with epinephrine is injected into the region of the infraorbital nerves and subcutaneously in the nose and around the base of the columella. Nasal packs saturated with Xylocaine ointment, 5 per cent, are adequate for mucosal anesthesia. By using them the undesirable reactions from cocaine solutions or spray, including the cocaine-epinephrine pressor interrelationship and the suppression of swallowing and cough reflexes incident to anesthesia of the pharynx by sprays, can be avoided.

Technique of operation necessarily varies greatly from patient to patient but follows closely the technique of Joseph in which a subperiosteal resection of redundant bone and cartilage is carried out. The nasal processes of the maxilla are divided with clean sharp saw-cuts and the bridge is narrowed. Septal contours are revised. Correction of the tip cartilages requires considerable artistry and experience to obtain a good esthetic result. In most cases a single incision inverting the alar cartilages from behind is preferable to making both a posterior and anterior rim incision which causes scarring and formation of stricture. The columella is sutured to its new position on the septum and adjustments are made to give the final nicety of correction which is desired.

Complete rhinoplasty, skillfully done, should not take longer than 15 to 30 minutes and should cause practically no discomfort for the patient except for the mild discomfort of the needle during the injection of local anesthesia. A nasal splint of light aluminum is fashioned and applied to the nose and one parawax pack is placed in each nostril for 24 hours.

The morning following operation the nasal packs are removed and the patient is permitted to go home. Three or four days later the surgeon removes the nasal splint. In some cases the nose is supported by a small bit of adhesive tape for two or three more days.

RESULTS

Although plastic operations on the nose for cosmetic purposes are not always completely successful, almost always a very remarkable benefit in appearance is brought about. If the patients have been selected with sufficient care, there should be few postoperative difficulties. Complications such as epistaxis, hematoma and (extremely rare) infection may have to be dealt with. In an occasional case, minor secondary procedures—which can be done in the office—are necessary to revise slight irregularities which may develop with healing.

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Mitral or Aortic Commissurotomy

Criteria for Selection of Patients

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• In the selection of patients for mitral commissurotomy, five separate categories are to be considered: (1) true mitral block with small heart and high pulmonary artery pressure, (2) mitral stenosis without mitral block, (3) mitral stenosis with subacute carditis, (4) mitral stenosis with marked cardiac hypertrophy, and (5) mitral stenosis with embolism.

Surgical results are good to excellent provided adequate preoperative evaluation has eliminated the groups with subacute carditis, and those without mitral block. Cardiac catheterization is a valuable adjunct in difficult problems.

THE NEW AGE of open heart surgery—that is, with the operative field exposed to direct vision—points up the need for a renewed evaluation of operations for rheumatic heart disease. Although the criteria for the selection of patients most suitable for operations on the mitral valve[12] have changed little, the number of "ideal" patients for the operation is gradually diminishing. In the less favorable remaining group, multivalvular lesions and myocarditis are presenting increasingly complex problems. In the midst of this changing pattern the advent of open heart surgery, particularly in the field of aortic valve disease, has created a special and new problem.

The purpose of this presentation is to separate the subvarieties of mitral and aortic stenosis in physiologic terms in the hope of achieving a better understanding of postoperative clinical results. In approximately 75 per cent of cases these postoperative results have been moderately good to excellent; in the remainder there is little or no improvement. Some attempt must be made to uncover the reasons behind the lack of improvement.

The first step in the appraisal of the selection of patients for mitral commissurotomy will be the consideration of five separate clinical situations wherein mitral stenosis is the predominant lesion: Patients of Group I, those best suited for successful operation are those with a small heart and high pulmonary artery pressure. Such patients are ideal for operation. Group II embraces patients with mitral stenosis without mitral block, and therefore without elevation of pulmonary artery pressure. In such patients operation is useless. Group III includes patients with a relatively small heart but with the clinical and physiological findings of a low grade myocarditis. In such patients operation may be disastrous. In Group IV are patients with a large heart, with or without myocarditis, who have a striking elevation of pulmonary artery pressure. In such cases, valvulotomy may entail a 20 per cent to 40 per cent mortality rate and may verge upon being a procedure of desperation. Group V includes patients with a recurrent or single embolism; for them, operation is done as a preventive measure. Each type will be discussed in turn.

GROUP I. The selection of the ideal patient for mitral commissurotomy should be identical to the selection of a patient with a significant degree of mitral block. All investigators would agree with Crafoord and Werko[7] that patients with pure mitral stenosis, a small heart, prominent pulmonary vascular shadows and a history of episodes of hemoptysis, coughing and pulmonary edema would be ideal candidates for operation. An electrocardiogram consistent with right ventricular hypertrophy would constitute additional confirmatory evidence of strain on the right ventricle. However, it is wise to remember in this connection that only 50 per cent of patients with elevated pulmonary artery pressure show the electrocardiographic pattern of right ventricular hypertrophy.[5] This, then, represents the patient with "mitral block"—a purely mechanical barrier to left ventricular inflow in which the height of pulmonary vascular resistance is the measure of the degree of obstruction at the mitral valve. Such a patient usually presents few problems in diagnosis or therapy. It can be shown, as in a recent series[14] and in the group discussed by Janton and Glover,[16] that pulmonary artery pressure falls significantly after operation in patients with a successful result. Furthermore, at least in the series of 26 patients reported upon herein who had cardiac catheterization before and after operation, the degree of clinical improvement often paralleled the degree of decrease in the pulmonary artery pressure. An adequate valvulotomy, as Glover[10] pointed out, is a plastic procedure and implies a complete anatomic separation

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Submitted January 17, 1957.

of the anterior commissure, a partial division of the posterior commissure and careful attention to the chordae tendinae surrounding the anterior leaflet of the mitral valve. However, commissurotomy appears never to bring about complete restoration of normal valve function, since completely normal pulmonary vascular pressure is rare following operation.

Group II. Mitral stenosis is not infrequently present without mitral block. A valvular diameter of less than 1.5 cm. is necessary for the development of significant disability or a significant elevation of pulmonary artery pressure at rest, or during exercise. A number of young patients, mostly female, are seen with mitral stenosis and without cardiac enlargement, disturbance of pulmonary vascular circulation or evidence of right ventricular hypertrophy. In this group, fatigue, dyspnea or even palpitation may be extremely difficult to evaluate. On several occasions recently, cardiac catheterization was necessary to establish the presence of normal pulmonary artery pressure at rest and during exercise. Operation was contraindicated. There are some investigators who seem to assume that such patients will show progressive pulmonary hypertension, and who imply that such a process may be arrested by early valvulotomy. Only a few, including Crafoord and Werko,[7] accept the possibility that such a lesion may be static. The author, in agreement with Crafoord, believes that the development of the lesion in its final form is an adolescent process of relatively short duration—according to White and Bland,[25] one to two years. It seems more likely, then—although it has not been proved—that the readjustment of pulmonary dynamics occurs early in life, and that progressive pulmonary hypertension over a period of years is rare without further rheumatic valvular damage.

Group III. A second extremely important group of patients are those with mitral stenosis in whom the pulmonary artery pressure is virtually normal under resting conditions. Patients of this order, as was recently emphasized by Wood and co-workers[26] are presumably exemplary of subclinical rheumatic myocarditis without mitral block. Clinically it is apparently impossible to distinguish this group from patients who have pure mitral block. The characteristic findings on cardiac catheterization are a subnormal cardiac output, a normal resting pulmonary artery pressure and either a normal or, more usually, an elevated pulmonary artery pressure during exercise. Although symptoms tend to be somewhat more pronounced than in patients with mitral block, and in general the heart size is slightly larger, distinguishing those of one group from those of the other cannot be done acceptably by physical examination, the electrocardiogram or x-ray studies. However. Group III patients may occasionally be identified by lack of response to bed rest and digitalization. Approximately 25 per cent of the patients studied by Ferrer and co-workers[9] and 20 per cent of the patients in the present series fell into this category.

To recapitulate, there are two types of patients, both with low pulmonary artery pressure, in whom mitral valvulotomy would seem to be either useless or hazardous. The first type, including those with a minimal degree of mitral stenosis insufficient to produce mitral block, has few abnormal features; the second type has myocardial insufficiency as a predominant cardiovascular lesion. In the former group psychosomatic or poorly evaluated complaints may lead to ill-advised valvulotomy. In the latter group, where myocarditis is present, valvulotomy may result in a disastrous flareup of the rheumatic state.

Group IV. Patients in this group have, concomitant with mitral stenosis, large hearts, a high incidence of atrial fibrillation and present or past congestive failure. In this group the operative mortality ranges from 20 per cent to 40 per cent, although in some cases results are very good. It is likely that this group includes a rather large proportion of patients with subacute myocarditis in addition to mitral block. Cardiac catheterization will show very low cardiac output and very high pulmonary artery pressures. Here again it is likely that spectacular results occur primarily in those patients in whom mitral block rather than myocarditis is the essential pathologic lesion. It is in this group that the decision for or against operation would seem to be the most difficult, since no definitive physiologic or clinical criteria are available for clear-cut selection of favorable candidates.

Group V. This group is made up of patients with mitral stenosis, peripheral emboli and varying degrees of cardiac disability. Storer and co-workers[24] reported the incidence of atrial thrombosis at 84 per cent in mitral stenosis and at 9 per cent in mitral insufficiency. They looked upon the regurgitant jet that is present in the latter condition as a safety factor which prevents thrombosis. The incidence of embolization is of course much higher with auricular fibrillation than with normal sinus rhythm. The presence of a single peripheral embolus should be an indication for immediate valvulotomy unless specific contraindication is present. The incidence of peripheral embolization is sharply reduced following mitral commissurotomy, as was shown by a report by Ellis and Harken[8] on a series of 440 patients with an incidence of only 5 peripheral emboli 22 months after operation.

Cardiac catheterization has contributed greatly to the understanding of mitral valve operations, as was observed by Herman and co-workers.[14] Data on 26 patients who had cardiac catheterization before and

TABLE 1.—*The Relationship of Degree of Clinical Improvement to Fall in Systolic Pulmonary Artery Pressure After Mitral Commissurotomy in 26 Patients Studied by Cardiac Catheterization Before and After Operation.*

Group*	I	II	III
Number in each group	10	7	9
Initial systolic† pulmonary artery pressure	93 (64 to 140)	57 (31 to 104)	53 (30 to 72)
Postoperative fall in† pulmonary artery pressure in mm.	57 (30 to 85)	17 (6 to 40)	3 (—12 to +8)
Per cent fall in pulmonary artery pressure after operation	50	20 to 50	20
Clinical improvement	10 excellent	7 moderate	3 poor 6 moderate
Number of patients having operation primarily for embolism	0	2	3
Number of patients with myocarditis	0	1	0
Number of patients without mitral block	0	2	0
Number of patients with gross cardiac enlargement	3	0	2
Number of surgical failures	0	1	1

*Groups I, II and III (see text) were classified according to whether the surgical result was excellent, moderately good or poor.

†Initial systolic pulmonary artery pressure and fall in pulmonary artery pressure (in mm. of mercury) after operation were expressed in group means, with the ranges in parentheses.

after mitral commissurotomy are presented in Table 1. Eleven patients had a clear-cut excellent result. In them the systolic pulmonary artery pressure, always above 50 mm. of mercury before operation, and usually much higher, was at least 50 per cent lower after operation than before. The clinical results in these patients were also excellent. In six additional patients, in whom the original level of pulmonary artery pressure was not so high, there was a moderate decrease in pulmonary artery pressure—10 to 12 mm. of mercury. The clinical result was variable; two showed pronounced improvement, two had a moderate improvement and two did not improve. Nine patients had no decrease in pulmonary artery pressure after operation. albeit three showed definite clinical improvement and two showed some improvement. Four were unimproved.

From this summary it might be said that clinical improvement is probably related to the initial degree of mitral block and is also related to the decrease in pulmonary artery pressure, although the latter relationship is far less precise. These findings are in agreement with those of Holling and Venner[15] who emphasized the singular importance of pulmonary artery pressure measurements and commented on the lack of correlation between the cardiac output and degree of disability. The poor results in the present series are generally attributable to five causes: (1) gross cardiac enlargement with probable myocardial insufficiency; (2) unrecognized myocarditis in a small heart; (3) absence of significant mitral block; (4) thromboembolic complications; (5) surgical failure—a relatively minor cause.

The complexities of cardiac catheterization have stimulated a search for simpler physiologic tests in the selection of patients for operation. In analyzing 50 patients in whom pulmonary function was appraised,[6] it was found that the vital capacity correlated quite well with the level of pulmonary artery pressure and with pulmonary vascular resistance, whereas maximum breathing capacity, arterial oxygen saturation, ventilatory equivalents for carbon dioxide and for oxygen and indices of distribution and diffusion showed no correlation with pulmonary artery pressure. A most interesting finding was the presence of a relatively normal vital capacity and maximum breathing capacity in many patients with a normal pulmonary artery pressure, low cardiac output and probable rheumatic myocarditis. It may be deduced that two simple procedures, the determination of the vital capacity and of maximum breathing capacity, may uncover an unsuspected case of subclinical rheumatic myocarditis, and also will, in pure mitral stenosis, give a rough estimate of the degree of pulmonary disability.

A familiar problem in the selection of a candidate for mitral commissurotomy is the appraisal of the degree of mitral insufficiency and other valvular lesions. As Brock[4] stated, mitral insufficiency may take three forms: (1) the small regurgitant jet present with the very stiff and probably calcified valve; (2) the moderate regurgitant jet produced by organic valvular regurgitation with predominant shortening of the chordae tendinae; (3) the grossly patulous mitral opening produced by dilatation of the mitral ring in rheumatic carditis. The small-sized jet is clinically unimportant and may disappear completely after valvulotomy. With a moderate-sized jet a combination of mitral stenosis and insufficiency may be present. It is in this situation that additional laboratory data can be critically important in deciding whether mitral stenosis or insufficiency is predominant. Owen and Wood[23] said that the two cannot occur together in an equal degree, and auscultation should decide the problem. Owen and Wood particularly emphasized the importance of the opening snap as a sound that almost never occurs when mitral insufficiency is the predominant lesion. In a series of 150 patients with mitral stenosis, they noted, the opening snap was absent in only 16 per cent. In patients in this classification, either pronounced calcification of the valve, auricular thrombi or aortic insufficiency was noted at operation.

Besides direct left atrial pressure curves, other laboratory aids such as the phonocardiogram and electrokymogram may be valuable. Also, as Levinson[18] reported, a striking regurgitant wave of mitral insufficiency may be present in pulmonary capillary tracings. In the phonocardiogram the time between the second sound and the opening snap is shortened in proportion to the height of atrial diastolic pressure. In addition, as Kelly[17] observed, the time between the R wave of the electrocardiogram and the first heart sound is lengthened. In the electrokymogram, according to Haring and co-workers,[13] an early systolic plateau is present in mitral insufficiency and a late systolic plateau is present when mitral insufficiency is combined with stenosis. In spite of these laboratory aids, mitral insufficiency remains a difficult diagnosis. In the series of Storer and co-workers,[24] for example, a correct diagnosis of mitral stenosis versus insufficiency was made in only 60 per cent of patients. A badly deformed valve with true mitral insufficiency presents a definite hazard and at present there is no adequate operation.

In aortic stenosis, as in mitral stenosis, the selection of patients for commissurotomy is based upon two factors: the presence of an operable valvular lesion, and evidence that such a lesion is symptomatic and progressive. The appraisal of an operative lesion is somewhat more difficult than in mitral stenosis. It is well known that a proportion of patients with aortic stenosis have neither a significant thrill nor an appreciable decrease of intensity of the second sound at the aortic area. Fortunately intra-arterial pressure curves aid greatly in the analysis of precordial and basal systolic murmurs and should be routinely used to rule out stenosis of the aortic valve, as Goldberg and co-workers[11] noted.

Likoff[19] recently emphasized that aortic stenosis is a progressive lesion and a symptomatic one; in 85 per cent of the patients he reported upon, there was a measurable degree of dyspnea. Thus in aortic stenosis as in mitral stenosis, objective evidence of disability occurs earlier than was formerly suspected—much earlier, for example, than the classic triad of angina, syncope and sudden death. However, patients with aortic valvular stenosis have very slow progression of disability, and the average age at death is rather high; in Anderson's[1] recent reported series, it was 64 years. Adequate selection of a suitable candidate for operation is an immense job, involving the balance of the present high surgical risk against what may be only a moderate prolongation of life.

Probably the only satisfactory estimate of the degree of aortic stenosis is reached by the direct measurement of the pressure across the aortic valve by left heart catheterization, as Bjork and Malmstrom[3] did, or, instead of this, by a comparison of the left ventricular and brachial systolic pressure. However, as Musser and co-workers[22] pointed out, severe aortic stenosis may occur with a small pressure gradient, since the cardiac output, as in mitral stenosis, is a factor in determining the height of the pressure gradient. Brachial artery pressure curves, although helpful in the establishment of the diagnosis, cannot be correlated directly with the degree of aortic stenosis. They are, however, a valuable adjunct to a physiologic appraisal, since some idea of left ventricular function may be obtained by comparing such curves before and after the Valsalva maneuver.

A clear analysis of the problems related to aortic valvulotomy was recently presented by Litwak and co-workers,[21] relating surgical failures to morphologic abnormalities of the orifice. Calcification, present in 87 per cent of the cases they studied, although contributing to the rigidity of the valve, was not nearly as important a deterrent as thickening of the commissures, which made them completely immobile. Immobility of leaflets was found to be the single most important deterrent to the creation of an adequate orifice. No discussion of aortic commissurotomy is complete without mention of the report of Bailey and co-workers.[2] Bailey pioneered first the transventricular and secondly the aortic approach to aortic commissurotomy. With the transventricular approach the mortality rate was 25 per cent; with the aortic approach, slightly over 10 per cent. In the transventricular approach it was soon found that in many cases the thickened ventricular wall could not be pierced with the aortic valve dilator without considerable risk of death from ventricular fibrillation. This was rarely true, however, when mitral stenosis and aortic stenosis occurred as a combined lesion, since the stenosis of the mitral valve protected the left ventricle from overdistention and hypertrophy. Although the aortic approach, utilizing a plastic pouch, permits digital palpation of the aortic valve and a careful placement of the dilator at the individual commissures, the strong fusion of the cusps in 25 per cent of cases makes adequate commissure separation difficult. Furthermore, it is almost impossible to decide clinically which patient will have an immobile valve.

The most exciting and encouraging surgical approach to date was recently reported by Lillehei and co-workers.[20] In one patient, a woman 37 years of age, a pump oxygenator was used to by-pass the circulation from the superior and inferior vena cava to the left subclavian artery. This technique was combined with retrograde perfusion of oxygenated blood through the coronary sinus, thus maintaining myocardial circulation and preventing air embolism. After cross clamping, the root of the aorta was opened, the aortic valve exposed and the commissures divided by dissecting scissors down to the annulus. Some of the calcium was trimmed off and the synechiae binding the cusps against the inner aortic wall were divided. It would seem that such direct plastic procedures may in the future be the operations of choice for aortic stenosis.

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ACKNOWLEDGMENT

The author would like to thank Dr. George C. Griffith and Dr. Lawrence M. Herman for their valuable suggestions and assistance.

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Multiple Sclerosis

Failure of Treatment with Orally Administered Digestive Enzymes

ALAN J. FRIEDMAN, *M.D.*, Los Angeles

• A series of patients with multiple sclerosis, most of whom had had the disease a long time, had no clinical response to therapy with a protein enzyme preparation (Entozyme®) over a period of 12 to 24 months. They did, however, show an improvement in the chylomicron index and in albumin concentration in the blood serum.

One of the many unsolved medical problems is that of multiple sclerosis. The cause is unknown and there is no treatment which is felt by a majority of competent authorities to alter the incidence, severity or duration of the disease. Hence. when a patient who was treated (almost fortuitously) with protein enzymes seemed to be greatly improved, a study was undertaken to evaluate the use of these preparations in the therapy of multiple sclerosis.

REPORT OF A CASE

The patient who led to this study was a 47-year-old stock rancher who had no neurologic symptoms until December of 1942, when he began to have generalized headaches with no localization. In February, 1943. for five days he "felt as though a pruneskin was attached to the upper side of the right half of my mouth." Shortly thereafter, for a six-day period the right half of his face felt "stiff" from the hairline to the upper lip, and the area felt as though "I had lost feeling in it." A few days later the patient awoke with decidedly disturbed vision in the right eye. The condition progressed to absolute blindness, which cleared over a period of a month during which vitamin and fever therapy was carried out. Except for transient paresthesias of the extremities. the patient then was in essentially good health until a transitory spell of radiating tingling pains in the left upper extremity occurred in 1945. Early in 1947, the eyes began "jumping from side to side," and in 1948 the patient had several episodes of dimness of vision in the right eye which would clear after five to ten minutes of rest. Except for pronounced decrease in libido, the patient's status was fairly stationary until December of 1950 when he noticed clumsiness and easy fatigability of the left lower extremity.

Upon neurological examination in 1951, no abnormalities were observed ophthalmoscopically. Nystagmoid movements on upward gaze were noted and there was a very slight degree of horizontal nystagmus. Also noted were very slight anisocoria, diminished perception of vibration over the right malleoli, slight hyperreflexia with three or four strokes of abortive left ankle clonus, and Babinski's sign on the left side. The patient hopped on the left foot with slight difficulty and had slight to moderate impairment of station standing on the left foot alone. "From these data and from the history," the neurologist reported, "it is apparent that the patient has multiple sclerosis."

In July, 1952, while reading of some livestock feeding problems, the thought occurred to the patient that his body might not be producing enough of the proper enzymes. Since he felt that proteins were closely related to the nervous system, he decided to try "protein enzymes" as a supplement. His physician then suggested Entozyme®* and the patient started taking three tablets three times daily after meals. By November of 1952, he said he felt considerably less malaise and by July of 1953 the patient felt that most of the symptoms had cleared. He continued to take the preparation, varying the dose as development of gastrointestinal hyperperistalsis from time to time seemed to dictate. In August of 1954 the patient began taking Pancreatin® rather than Entozyme, hoping to avoid these unpleasant side effects. In April of 1955, he started taking Erepsin® and soon afterward discontinued Pancreatin. Thereupon exacerbation of the disease developed and the patient was hospitalized for a ten-day course of histamine, which did not help. He was then given enteric coated Pancreatin tablets and was apparently subjectively improved within three days and in two months was back to the previous improved status. In November of 1955 he was again examined by the same neurologist, who noted that there was appreciable loss of perception of vibration in both lower limbs, with ataxia and more evident reflex changes than were previously observed.

When the patient was last observed, in July. 1956, the gait was apparently greatly improved. There was no nystagmus and the intention tremor was characterized as mild.

Submitted April 9, 1957.

*Entozyme, a preparation made by the A. H. Robins Co., Inc., contains 250 mg. of pepsin, N.F., 300 mg. of Pancreatin, U.S.P., and 150 mg. of bile salts.

TABLE 1.—*Clinical Data on Two Groups of Patients with Multiple Sclerosis—One Treated with Entozyme® by Mouth, the Other Receiving Placebos*

	No.	Dominant Lesion*		Functional Classification (Thygesen)					Duration of Disease (Years)	
	Patients	Cerebellar	Pyramidal	I	II	III	IV	V	Range	Average
Treated	18	9	9	1	5	4	6	2	1-32	15
Controls	19	9	10	1	6	7	5	....	2-24	15

*All had various degrees of involvement in other neurological spheres.

METHODS

After observation of the patient in the foregoing case a study was begun to determine the value of Entozyme in the treatment of multiple sclerosis in a series of patients. The A. H. Robins Co. helped in setting up a double blind experiment by supplying Entozyme and also placebo tablets identical in appearance to the active preparation. These were prescribed as "Entozyme A" and "Entozyme B" and the clinician evaluating the patients neurologically did not know which one contained the medication until the study had been going on for approximately twenty months. The dosage was three tablets three times daily after meals except in the rare cases in which gastrointestinal difficulties made reduction of the dose necessary.

The evaluation of therapy in a group of patients with multiple sclerosis and the attempt to set up a controlled study is fraught with difficulties. A disease which may have a duration of twenty or thirty years and which almost requires a history of exacerbations and remissions to make the diagnosis, would obviously be most perplexing to assess. The problem of establishing two groups of comparable cases is also most challenging in a disease characterized by such protean nervous system manifestations. An attempt was made to solve these problems in the following manner. Patients dealt with in the Multiple Sclerosis Clinic at the Los Angeles County General Hospital were divided into categories depending on the neurological site of the most pronounced clinical involvement—upper motor neuron (pyramidal system), cerebellar, optic nerve and other cranial nerves. Attempt was then made to alternate between consecutive patients with the same major system involvement and, to some extent, with approximately the same known duration of the disease, putting one patient in one group and the next such patient in another. In order to provide some laboratory data for objectivity and to evaluate some recent studies, chylomicron and filter paper electrophoresis studies were done on the patients before therapy was started and again after some three to six months of treatment.

Recording the course of the disease in the patients has been done by various investigators in many ways. Counting the number of exacerbations or remissions, recording in detail the neurological status and the changes, noting the degree of improvement in the predominant symptoms in the current attack, or evaluating the over-all functional status of the patient—these are among the many methods proposed. A combination of the functional status classification and observation of the neurological course was deemed best for the present study. Hence an abbreviated ability survey chart was added to each patient's hospital chart. This chart covered ambulation, toilet habits and ability to clothe oneself, feed oneself, do household chores, sew and write letters. The patient was then classified according to Thygesen's[6] system as (I) fully capable in original occupation, (II) partially capable in original occupation, (III) incapable in original occupation, but fully or partially capable in lighter work, (IV) completely incapacitated, not bedridden, and (V) bedridden. Entries were made on these charts every three or four months. Thorough history-taking and neurological examination were carried out at the beginning of the study and the neurological status was redetermined about every six to eight weeks.

RESULTS

During our study, 18 patients were given Entozyme and were kept under close observation for a minimum of 12 months, and most of them for at least 18 months. The control group (placebo treated) was made up of 19 patients who were as nearly comparable as possible to the treated group (Table 1). During the 12 to 24 months of this study, none of the patients in either the Entozyme treated or the control group showed any improvement in functional classification, although there were minor changes from time to time in neurological symptoms or signs. The two patients who were in Class V (bedridden) when therapy with Entozyme was started, died approximately 15 months later. Two patients deteriorated from Class III to Class IV while receiving Entozyme, while one went from II to IV. In the control group, two went from Class III to Class IV while one went from IV to V. All other patients maintained the same general functional status throughout.

The chylomicron index returned to a normal range in the Entozyme treated patients but remained above normal limits in the patients receiving placebo tablets.[3‡] Serum albumin, which is low in untreated cases, was increased during Entozyme administration.[5‡]

DISCUSSION

Aside from the rather nebulous evidence of therapeutic efficacy of Entozyme in the case herein reported, was there any possible rationale for hope in the use of this preparation? Lowry in 1954[1] reported on the use of deproteinated pancreatic extract (Depropanex®) in a group of patients with multiple sclerosis of long standing. He believed that the patients were improved but he attributed the improvement to the vasospasmolytic properties of the drug. Pancreatic substance given by mouth cannot be considered to affect the status of vascular tone and no one has indicated any deficiency of digestive enzymes in patients with disseminated sclerosis. However, there have been many studies indicating a disturbance in lipid metabolism in patients with this disease. Swank[4] from McGill and the University of Oregon espoused the hypothesis that a diet high in fat content is associated with a high incidence of multiple sclerosis. He suggested that a high fat intake may even precipitate the disease in persons with an inherent metabolic defect. However, he did not speculate on any fat absorptive defect which might be affected by a digestive enzyme taken orally. He expressed belief that the number of exacerbations was reduced by giving patients a low fat diet.

As to why the condition of the patients in the series here reported upon either deteriorated or, at best, was unchanged, this was primarily owing to the type of case that was being dealt with. Many students of this disease have noted, and Kurtzke[2] recently reiterated, that the remission or spontaneous improvement rate is inversely proportional to the duration of the disease or of the particular exacerbation under study. The cases in both the treated and the control group in the present series were almost all of many years' duration.

6317 Wilshire Boulevard, Los Angeles 48.

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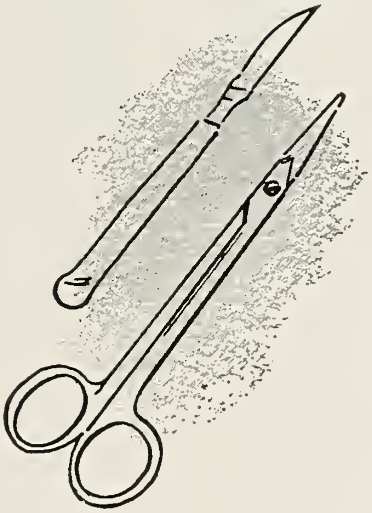
‡Dr. C. H. Thienes and Dr. R. G. Skillen and co-workers carried out the chemical studies.



Giant Cell Tumor-like Lesions of Bone

A Preliminary Report of a Pathological Entity

W. K. BULLOCK, *M.D.*, and J. VERNON LUCK, *M.D.*, Los Angeles

• In three cases of a giant cell tumor-like lesion of bone, the histological characteristics of the lesions were a fibrogenic stroma, capillaries, thick-walled blood vessels, multinucleated giant cells, osteoid tissue and bone trabeculae.

It is believed that tumors of that kind are another giant cell variant that should be separated from the true giant cell tumor if for no other reason than the favorable response to conservative surgical therapy.

GIANT CELL TUMOR is a debatable neoplasm and since it was first described there has been a variety of opinions regarding the nature of the lesion and as to etiologic factors. There have been three schools of thought: (1) That it is a benign tumor and does not metastasize (Bloodgood[1]); (2) that it is of traumatic origin and not a tumor (Martland[8]); (3) that it is a true tumor, usually benign but capable of an unpredictable and adverse biological behavior[2,6] (Jaffe, Portis and Lichtenstein, and Coley).

It is difficult to get definitive histological criteria, for in much of the early material reported some of the finer microscopic detail was neglected. However, Codman recognized that true giant cell tumors did not have thick-walled blood vessels and Ewing[3,4] stated that bone was regularly absent. Both Williams, Dahlin and Ghormley,[12] and Jaffe, Lichtenstein and Portis[6] noted osteoid formation.

There is no unanimity of opinion as to the anatomical sites at which these lesions may be located. Furthermore, there are many investigators who would include the giant cell lesions of the jaws as a giant cell tumor (Bloodgood[1]). In 1953, Jaffe[5] described the giant cell lesions of the jaws as "giant cell reparative granuloma" and said he had never seen a true giant cell tumor of the jaws. Jaffe also observed a similar lesion of a cervical vertebra. Furthermore, he was unable to differentiate either the peripheral or central type of this lesion from the one appearing in some cases of hyperparathyroidism. The same condition, according to Jaffe, is characterized at the Armed Forces Institute of Pathology as the "giant cell lesion."

It is the purpose of this report to call attention to some giant cell lesions of bone which frequently, but not necessarily, occur in persons under the age of 20 years; which usually occur in other than, as well as in, long type bones, and which have histologic structural characteristics not present in what are considered to be true giant cell tumors. The authors believe that these lesions are histologically the same lesions as are found in jaws and at times in the vertebrae and that have been termed "giant cell reparative granuloma." To illustrate these giant cell lesions, three representative examples have been chosen, one at the lower end of the radius, one in the talus and one in a vertebral body. Diagnosing these lesions offers no problems when there is adequate material available. The authors believe that they are benign but are uncertain as to whether they are neoplastic or granulomatous.

REPORTS OF CASES

CASE 1. A 17-year-old white boy was first seen at the Orthopaedic Hospital, Los Angeles, on April 19, 1954, with complaint of pain in the left foot and ankle that followed a sprain in 1952. It was not until several months after the injury that swelling and pain developed in the medial aspect of the foot. He then sought medical attention. An x-ray film was taken, which was stated to have shown a fracture. Palliative treatment was given. In June, 1953, at another hospital a biopsy and a bone graft were done and the patient then wore a cast for three months. When observed in the Orthopaedic Hospital a second time in June, 1954, biopsy and x-ray (Figure 1) examination of the lesion were carried out and a diagnosis of aneurysmal bone cysts was made. Roentgen therapy was begun to halt further progress of the lesion, but the growth persisted (Figure 2). On January 14, 1955, the defect was curetted and bone chips were placed in the cavity. The previous biopsy was reviewed together with the more adequate tissue removed by curettage and a diagnosis was made of "giant cell reparative granuloma." (Figure 3).

CASE 2. A 34-year-old white woman entered White Memorial Hospital because of pain between the

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From the departments of Surgical Pathology and Surgery, School of Medicine of the University of Southern California, the Orthopedic Hospital, the Los Angeles County General Hospital, and the Tumor Tissue Registry of the Cancer Commission, California Medical Association, Los Angeles, California.

The photography was done by Mr. Lloyd Matlovsky, Department of Photography at Los Angeles County General Hospital.

Presented before the Section on Pathology and Bacteriology at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

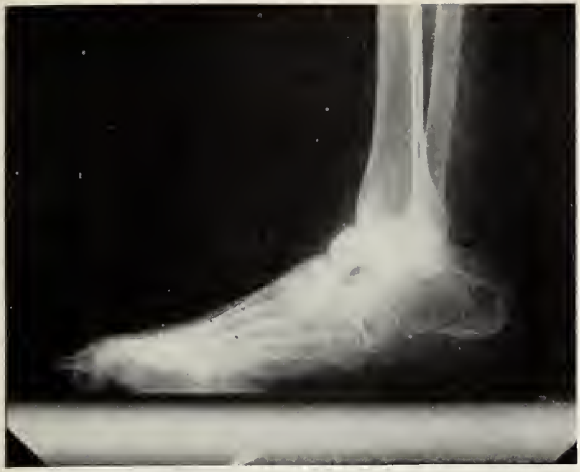

Figure 1.—Osteolytic and expanding lesion, anterior portion of talus.

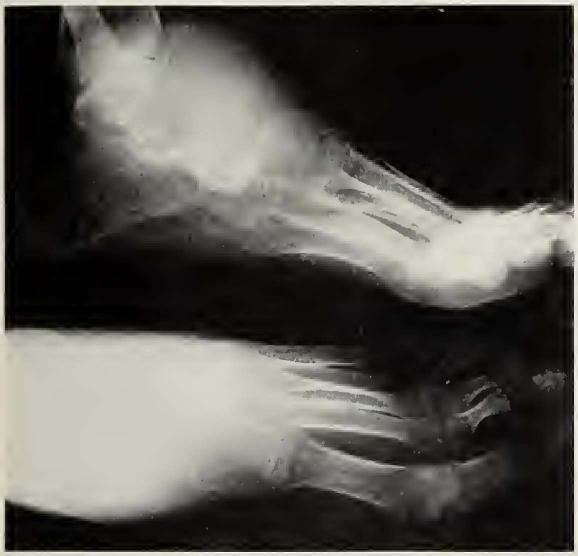

Figure 2.—Appearance of same lesion approximately four months following biopsy and x-ray therapy.

scapulae of five months' duration. There was tenderness in the back at about the level of the eleventh thoracic vertebra. and an x-ray film (Figure 4) showed an osteolytic lesion of that segment. There were no gross motor or sensory abnormalities except some weakness in the lower extremities. Laminectomy was done October 6, 1955. A tumor that was destroying the eleventh thoracic vertebra and extending into the spinal canal was observed. After curettage and laminectomy, the patient felt well for three months. Backache then recurred at the previous site and the patient also noted weakness and paresthesias of the lower extremities. She was readmitted to hospital in January 1954. On physical examination, sustained bilateral ankle clonus was observed. Operation was carried out and part of the vertebral body of the eleventh thoracic segment was removed and the spinal cord was completely decompressed.

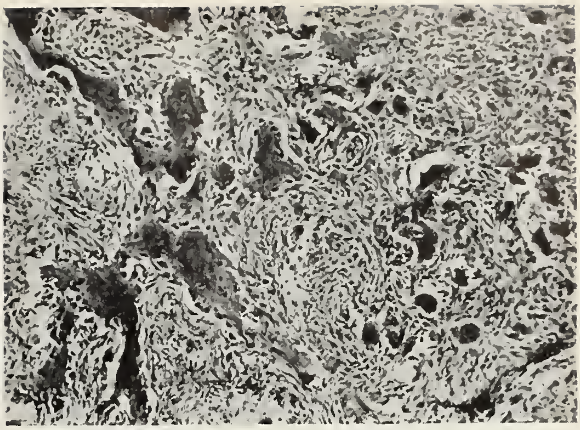

Figure 3.—Note the characteristic size and shape of the giant cells, the loose small spindleoid cell stroma and the fiber bone (×125).

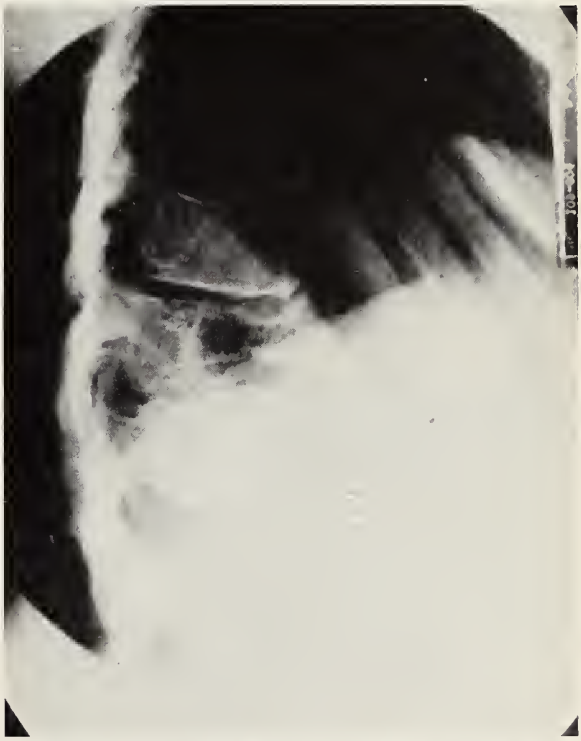

Figure 4.—Osteolytic lesion anterior portion of 11th thoracic vertebra, secondary compression of anterior portion with degenerative change about joint space.

The patient went into shock and it was deemed inadvisable to continue the fusion aspect of the operation and the rest of the resection of the tenth and eleventh vertebrae. The tissue removed at the various operations was essentially the same (Figures 5 and 6). Operation was done again on February 14, 1956, a small residual portion of the tumor and a considerable amount of scar tissue about the cord were removed, as were the remaining portion of the eleventh and half of the twelfth thoracic vertebra. The patient was placed in a cast and when last observed, November, 1956, was walking.

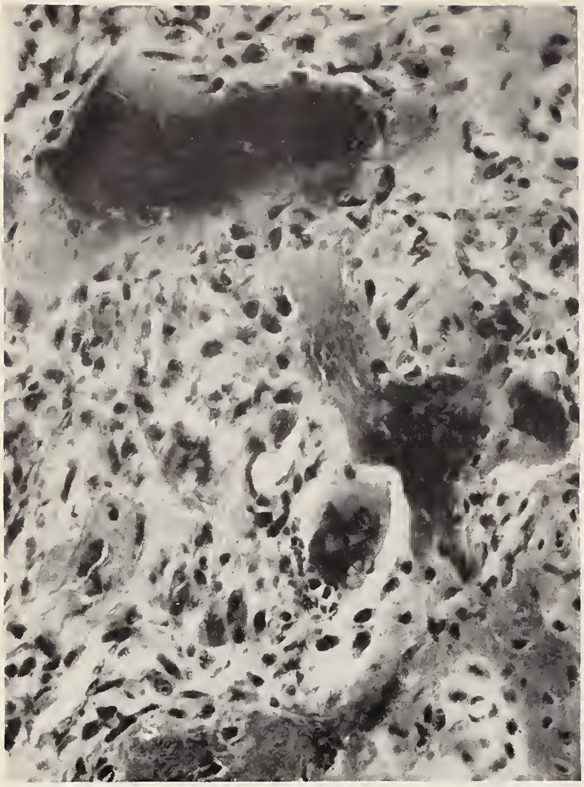

Figure 5.—Note the bony trabeculae with osteoclast and collagenized stroma from original biopsy (×300).

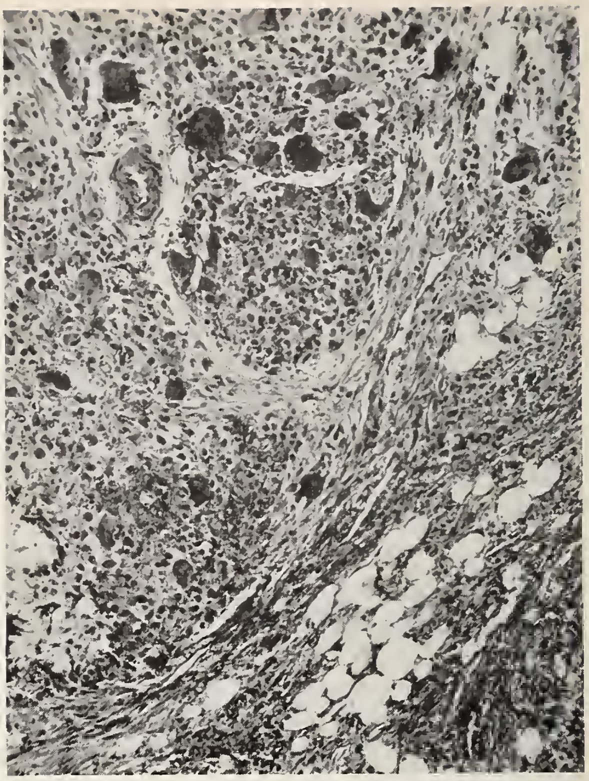

Figure 6.—Soft tissue extension at time of second operation (Case 1) (×300).

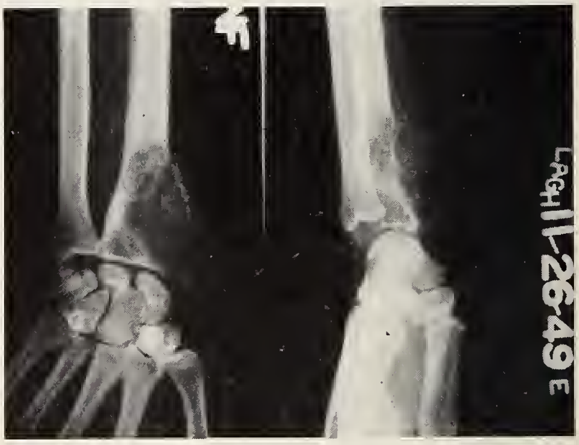

Figure 7.—Osteolytic lesion distal radius expanding cortex with cystic trabeculations.

Case 3. A 30-year-old negro woman was first seen at the Los Angeles County Hospital in November, 1949, with painful swelling of the wrist of four months' duration. Upon x-ray examination, a large, expanded osteolytic lesion of the distal radius with extremely thin cortical walls was observed (Figure 7). The histological diagnosis was giant cell tumor. Curettage and packing of the cavity with iliac bone chips were carried out in December of 1949. In September of 1951 it was observed that the graft had "taken" solidly. At the time of last examination, some seven years after operation, no evidence of reactivation was noted and the patient complained only of minor aching after prolonged use and in damp weather, which was consistent with traumatic arthritis at the radiocarpal joint. Upon review the diagnosis was: Giant cell reparative granuloma. (Figures 8 and 9).

PATHOLOGY

The tissue that is removed from lesions of the kind under discussion may be quite indistinguishable from material curetted from true giant cell tumors. On the other hand the tumor may, like the peripheral and central giant cell tumor of the jaws (so-called), contain obvious bone. The structural characteristics of the giant cell lesions described here are those of a spindle and giant cell growth, with the fibroblast much like that seen in reparative granulating tissue and such lesions as infiltrating fascitis rather than the round plump cell seen in true giant cell tumors. Other features are the large amounts of intercellular collagenic tissue, the characteristic thick-walled blood vessels, and the osteoid formation as well as the spicules of bone of the coarse fiber type. These are not situated at the periphery, and if they are the result of hemorrhage and necrosis there is no residuum to indicate that such might be the case. In most of these proliferations, if adequate sections are taken, at least osteoid tissue will be found, sometimes in scattered foci, sometimes in quite large amounts, and in some proliferations coarse fiber bone will be present. The spindle-cell element has variable numbers of giant cells and these are quite often indistinguishable from the giant cells in true giant cell tumors. However, many of the giant cells even in the closely packed spindle-cell areas have a clear space around them. This clear space is apparently due to shrinkage, but it is a constant artefact not usually noted in the closely packed portions of a true giant cell tumor. Also, the giant cells have a tendency to irregularity of shape, with the syncytial cytoplasmic border of the giant cell oftentimes sharply angulated. The number of nuclei is not nearly as uniform as in true giant cell tumors. At the border of these lesions the connective tissue is often well vascularized and is more mature looking with lesser density of spindle and giant cells, and the confining bone appears to be absorbed by vascular resorption rather than by actual giant cell invasion. However, there were a number of areas in which spindle-cell connective tissue with giant cells appeared to be eroding the cortical bone. The cortex and periosteum may be violated and soft tissues invaded.

DISCUSSION

There has been a great deal written about giant cell tumors of bone. Some investigators have been quite strict in the classification[6] of such lesions, excluding all other giant cell lesions as variants—benign chondroblastoma of bone, nonosteogenic fibroma, aneurysmal bone cyst, giant cell tumors of subperiosteal type. These observers also stress that the majority of giant cell tumors of bone are confined to the long bones. Morton[9] expressed the opinion that the true giant cell tumor is being too sharply circumscribed and that it does occur in the humerus, os calcis, in the ribs, vertebrae and sacrum, in the metacarpals and metatarsals and in the maxilla and mandible.

From the time of the first documented description of giant cell lesions, there has been indecision as to whether they are true neoplasms and, if true neoplasms, whether they are benign or malignant. The interest in these tumors has vacillated and the debate as to the benignancy or malignancy has been acrimonious. In 39 of 46 cases reviewed by Nelaton (cited by Coley[2]) the lesions were in the jaws. After Coley's[2] paper there was a gradual acceptance that some of these tumors are malignant. Jaffe's[5] work did much to establish that most giant cell lesions of the jaws are not true giant cell tumors. The authors agree with Lichtenstein,[7] who said: ". . . Until there is general agreement, in actual practice as well as theory, as to what constitutes giant-cell tumor, it seems futile to discuss results of treatment by one method or another—treatment of what, one may ask. Stated more explicitly, if the real giant-cell tumors are freely watered down by other lesions of no serious consequence, then results of treatment by any method can be made to look good."

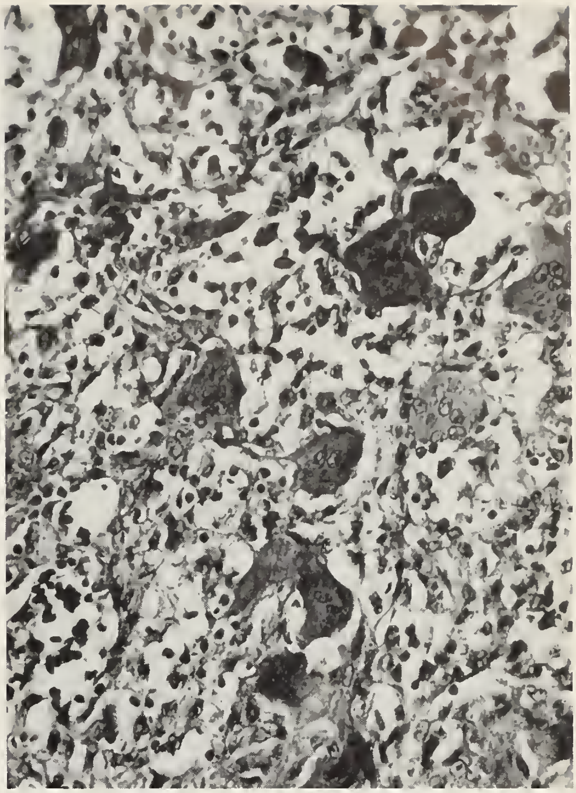

Figure 8.—The giant cells have irregular, angulated margins and clear spaces about them. The stroma is loose and spindleoid (×300).

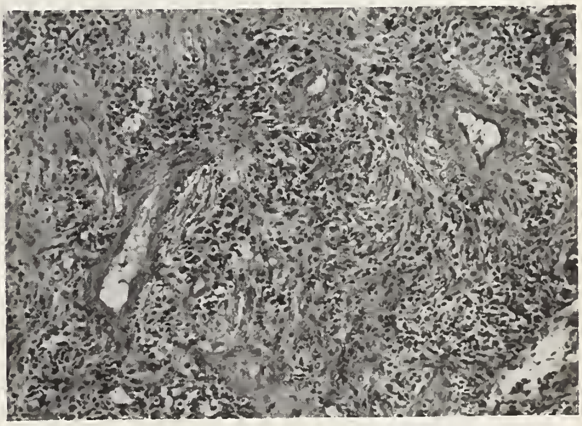

Figure 9.—Note the thick-walled vessels, the collagenized stroma and the small size of the cells (×125).

Treatment of the lesion should be curettement; and, in the case of large lesions, the cavity may be filled with autogenous bone or bone from a bank. Numerous sections should be made of the material removed, in order that adequate histological study can be carried out.

1200 North State Street, Los Angeles 33 (Bullock).

Case 2 was submitted to the Registry by Ewald Lonzer, M.D., White Memorial Hospital, Los Angeles.

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As your personal physician I consider it both a privilege and a matter of duty to be available in case of an emergency. Consequently, I thought it would be a good precaution if—on this gummed paper which can be pasted in your telephone book or medicine cabinet—I listed the numbers where I can be reached at all times. They are:

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CASE REPORTS

Subacute Cerebellar Degeneration Associated with Bronchogenic Carcinoma

J. J. BOCIAN, M.D., and
D. S. ZEALER, M.D., Fresno

TWELVE CASES of a peculiar neurologic syndrome of rapidly advancing cerebro-cerebellar degeneration as a complication of carcinomatosis have thus far been described in the English literature. The lung, breast, uterus and ovary have been the sites of the primary carcinoma, with the lung and ovary most frequently involved. It has also been found in cases of Hodgkin's disease.[5] Characteristics of the syndrome are absence of metastasis to the brain or spinal cord and rapid advancement of neurologic symptoms and cachexia, death usually taking place within several months either from the primary carcinoma or from the cerebral involvement.

Following is a report of an additional case.

REPORT OF A CASE

A 61-year-old white man had nausea and vomiting, transient diplopia and vertigo for a period of several days early in June of 1954, unassociated with fever but which eventually required hospitalization for a regimen of gastrostomy feedings and administration of dimenhydrinate (Dramamine®) and diphenmethanil methylsulfate (Prantal®). After seven days the patient was discharged somewhat improved. No abnormality was observed in roentgen examination of the gastrointestinal tract. The spinal fluid pressure was 140 mm. of water. The total protein content of the fluid was 32.0 mg. per 100 cc. Results of Wassermann and colloidal gold tests were within normal limits.

Trephination and ventriculography were carried out July 6, 1954. When the burr holes were made it was noted that the cerebral cortex was not under pressure; in fact, there appeared to be slightly more space than is usual between the dura and the surface of the brain. The ventriculographic studies gave no indication of a space-occupying process but the fourth ventricle and basal cisterns were not visualized. Several attempts were made to visualize these structures by injecting air from below, but the patient's condition was poor and even binding his legs and giving him supportive medication did not prevent a precipitous decrease in blood pressure when he was placed in a sitting position. Hence these attempts were abandoned. The patient was discharged from the hospital on July 16, his condition not much changed. A neurosurgical consultant believed there was not sufficient probability of a tumor to warrant exploration of the posterior fossa. The condition of the patient gradually deteriorated and he died about ten weeks later.

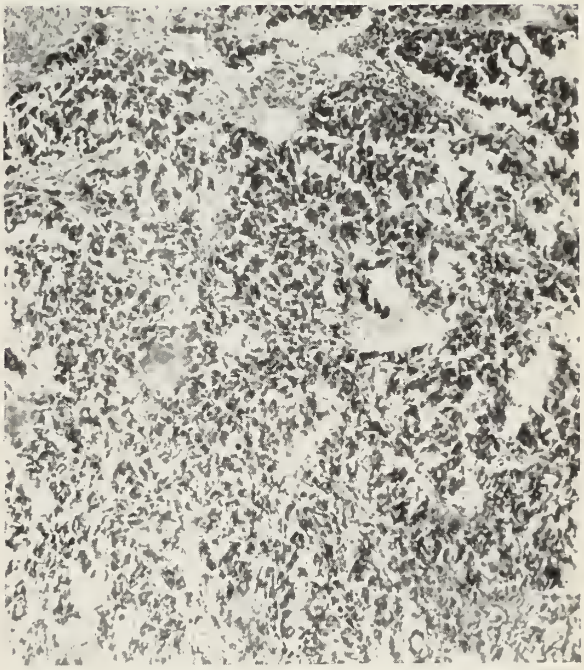

Figure 1.—Anaplastic bronchogenic carcinoma (×400).

Pathologist's Report

At autopsy the body was observed to be emaciated.

The left lung was crepitant throughout, the pleura smooth and glistening. The bronchi were free. The cut surface was somewhat moist. Moderate atelectasis was noted in the lower lobe of the right lung. In the bronchus leading to the lower lobe, 1 cm. from the point of origin an area of granular mucosa which extended into the surrounding tissue made a firm, irregular tumor 5 x 4 x 4 cm. On section it was partially necrotic, gray and granular. Anaplastic

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From the Departments of Pathology and Neurosurgery, Fresno Community Hospital, Fresno.

Submitted September 18, 1956.

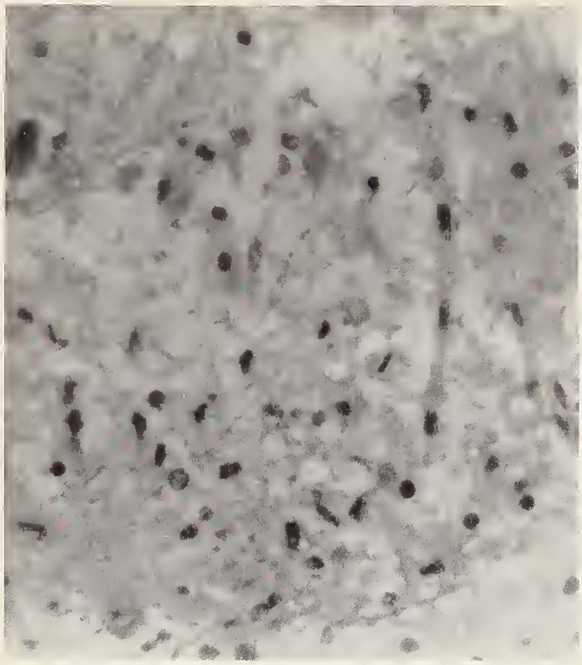

Figure 2.—Severe degeneration with diffuse dropping out of dentate nerve cells and fibers (×400).

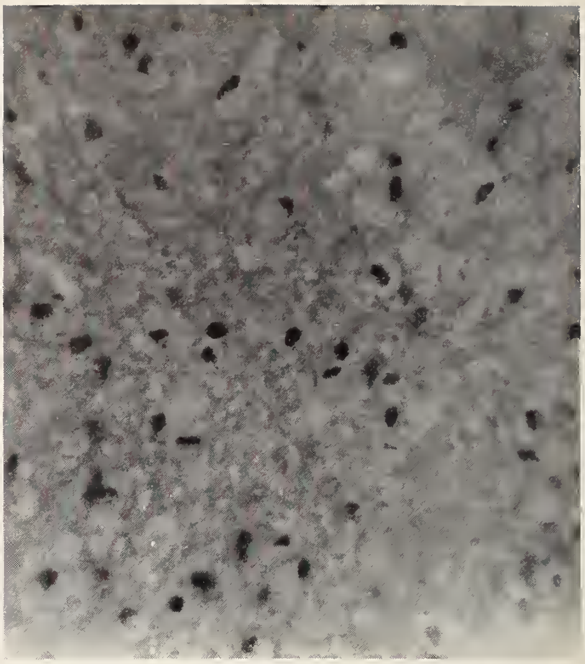

Figure 3.—Masses of fat-containing gitter cells in dentate nucleus (×400).

carcinoma was observed in sections of lung tissue (Figure 1).

Burr holes were present in the cranium. The brain was of normal weight, the dura mater of usual thickness. Cerebral surfaces were smooth and glistening. Pacchionian bodies were of usual distribution. The cerebral and cerebellar hemispheres, the pons, medulla oblongata and the cerebral peduncles were proportionate and symmetrical. The leptomeninges were delicate and transparent. There was no abnormality in the convolutions and the sulci were not narrowed. There was no cerebellar pressure cone. All vessels were very thin and showed no evidence of sclerosis. On coronal sectioning, the lateral ventricles were of equal width. The convolutions of the cerebellum appeared normal, the cavity of the fourth ventricle was of usual width, and the pattern of the vermis was normal. Cut sections of the cerebellar hemispheres showed the dentate nuclei clearly. The most prominent microscopic changes were:

1. Severe degeneration of the dentate nucleus, consisting of diffuse dropping out of dentate nerve cells and fibers (Figure 2) in and about the hilus, and large masses of fat-containing gitter cells (Figure 3); scattered and smaller lesions of the same nature were present in the cerebellar white matter also.

2. A striking, diffuse widespread degeneration and dropping out of Purkinje cells (Figure 4), accompanied by Bergmann layer gliosis and occasionally by microglia, moderately severe, particularly in the vermis. There was an occasional "empty basket" structure without Purkinje cells. No definite changes were observed in the cerebral cortex, pons or inferior olive, with the possible exception of a mild increase in glia in the cerebral white matter. It was difficult to ascertain the extent of the lesions because of limited material available for examination, but one would suspect that the severe dentate lesion would be accompanied by similar changes in the superior cerebellar peduncles, as was assumed in the clinical diagnosis. The spinal cord and peripheral nerves were not examined.

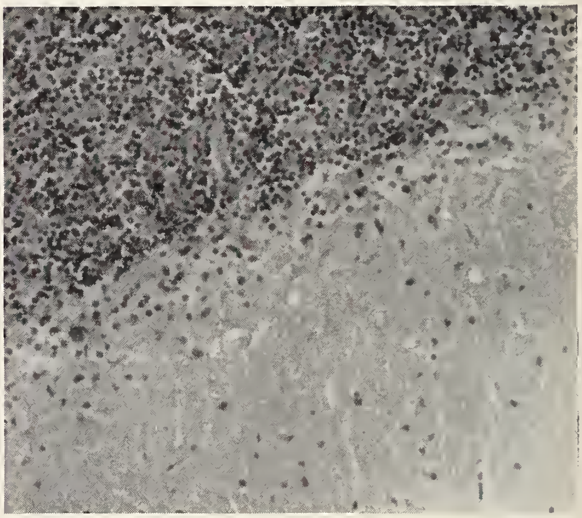

Figure 4.—Diffuse, widespread degeneration and dropping out of Purkinje cells of cerebellum (×400).

DISCUSSION

What part carcinoma plays in the development and progress of cerebro-cerebellar degeneration such as occurred in the present case is not known. It is probable that many more cases occur than are reported as such, since symptoms referable to the nervous system in a patient with carcinoma are usually ascribed to metastatic lesions. It has been suggested that the condition is carcinotoxic. However, Henson and co-workers[4] expressed belief it is more a question of carcinogenesis than of carcinoma. The possibility of viral cause has also been raised. Carcinomatous neuropathic change has been recognized for many years and polyneuritis associated with carcinoma is undoubtedly due to avitaminosis in many cases. Heathfield and Williams[3] described four cases of peripheral sensory neuropathic change or myopathic change associated with carcinoma of the bronchus. They noted demyelinization and gliosis of the posterior columns and degeneration of the posterior ganglion roots. While they agreed with previous investigators that a derangement in metabolism is a causative factor, they maintained that many factors must play a part, so widely various is the symptomatology—dementia, cerebellar ataxia, sensory, motor neuritic, myopathic, myesthenic and myotonic. Most cases of cortical cerebellar degeneration are due to acute general diseases such as alcoholism, syphilis, tuberculosis and exaggerated local aging. The subacute form dealt with in this communication is characterized by a rapid onset of cerebellar symptoms—unsteady gait, dysarthric speech and impaired coordination of the hands, diplopia, nystagmus, radiating pain in the lower extremities and early deterioration of the mental faculties. Usually there is an increase in the content of cells and protein in the cerebrospinal fluid.

When a patient in an upper age group has symptoms of peripheral neuropathic change or obscure muscular disorder, carcinoma of the bronchus should come to mind. The primary sensory neuropathic condition is so characteristic, in the opinion of Heathfield and Williams,[3] that bronchoscopic examination should invariably be carried out even though x-ray films of the chest are negative for cancer. In some cases, carcinoma of the bronchus was found many months after the onset of the neuropathic symptoms.

SUMMARY

A case of a rapidly progressing cerebellar degeneration in a 61-year-old man, associated with a bronchogenic carcinoma but without any evidence of cerebral or cerebellar metastasis is reported. The cause is still unknown. It is assumed that many such cases occur but that the symptomatology is ascribed to metastasis from carcinoma elsewhere.

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Bundle Branch Block in a Patient With Infectious Mononucleosis

ROBERT E. SMITH, *M.D.*, Torrance

HEART INVOLVEMENT in infectious mononucleosis was reported by Longcope[15] in 1922, shortly after general interest in the disease increased. Since then, there have been scattered reports of T-wave changes[2,6,8,9,11] heart block,[14,17,18] acute myocarditis[12,16] and pathological changes in the heart[1,5,7,13] associated with infectious mononucleosis. However, the author was unable to find a report of bundle branch block associated with infectious mononucleosis. In an editorial review of the subject Houck[10] did not mention this complication. Following is a report of a case in which a left bundle branch block developed in infectious mononucleosis.

CASE REPORT

A 29-year-old man, an intern, was admitted to the hospital on March 27, 1956, with headache, malaise, hyperesthesia and dizziness for three days.

At the onset of illness, three days before admission, the patient had worked 24 hours without sleep. During that time he noted malaise and anorexia, but no fever. The next morning, he noted an occasional "catch" in his chest. That afternoon he went to bed, but did not sleep well. Fever, sweating, dry cough, hyperesthesia, headache, rapid respirations and nightmares developed. However, he slept well that night. On the day of admission, he began to have shaking chills and the temperature rose to 104°F. The only therapy during this three-day period was acetylsalicylic acid, 0.6 gm. every four hours.

The general health of the patient had been good. He had had appendectomy in 1936 with no complications. In 1945 he was hospitalized two weeks for a fever of unknown origin and no etiological diagnosis was made. He had had no serious injuries and had no allergic sensitivity. He had had only minor infrequent upper respiratory infections, except for pneumonia in 1935 and 1944 with no known sequelae. The patient said he had had no previous symptoms referable to the heart. Three years before the present illness the patient had had an electrocardiogram taken and it was used in teaching as an example of a normal tracing (Figure 1).

From the Communicable Disease Service of Albert G. Bower, M.D., Los Angeles County General Hospital, Los Angeles 33.

Submitted August 10, 1956.

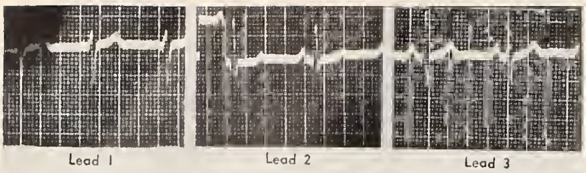

Figure 1—Electrocardiogram taken in 1953 when patient was a medical student. Picture shows only the three standard leads. These are in decided contrast with standard leads in electrocardiogram taken during infectious mononucleosis in 1956 (Figure 2).

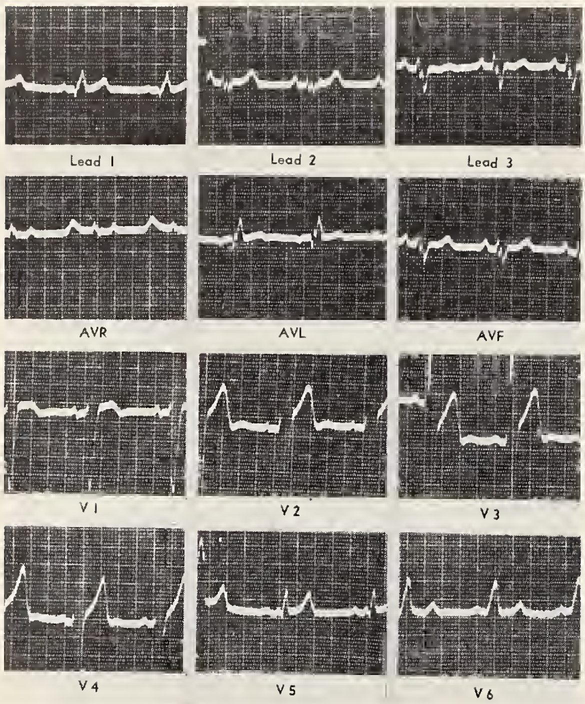

Figure 2—Electrocardiogram taken during acute phase of illness, showing left bundle branch conduction defect. An electrocardiogram taken a year later (Figure 3) was identical with one shown here.

The temperature at the time of admittance was 101.8°F., the pulse rate was 100, respirations 28 per minute and the blood pressure 130/70 mm. of mercury. The vessels in the throat were moderately engorged. There was no exudate. Slight enlargement of cervical lymph nodes on both sides was noted but the nodes were not tender. No other lymphadenopathy was noted. The lungs were normal. The heart, not enlarged, had a sinus arrhythmia. The pulmonic second sound was louder than the aortic second sound. There was a grade II blowing systolic murmur heard best along the left sternal border in the fourth intercostal space and heard with a grade I intensity at the apex. The murmur was not transmitted and disappeared upon deep inspiration. The liver was not tender or enlarged and the tip of the spleen was barely felt. The skin was dry and warm without rash.

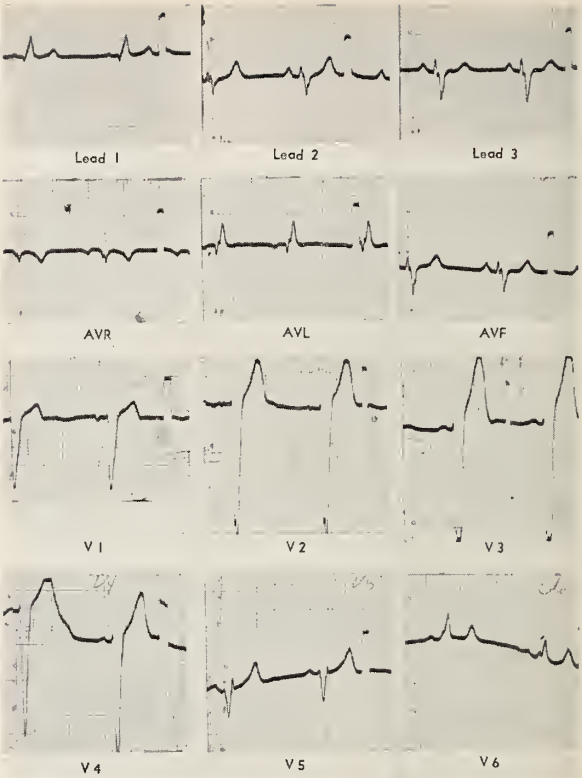

Figure 3—Electrocardiogram taken in May, 1957, showing bundle branch conduction defect same as during acute phase of mononucleosis in March, 1956.

The hemoglobin was 15.6 gm. per 100 cc. of blood. Erythrocytes numbered 5,500,000 per cu. mm. and leukocytes 5,500 per cu. mm.—40 per cent polymorphonuclear cells, 52 per cent lymphocytes and 8 per cent monocytes. There were over 20 per cent atypical lymphocytes, classified as Downey cell type I. The result of a heterophil test was 1:3584 before adsorption and 1:896 after guinea pig kidney adsorption. Results of serum agglutination tests for E. typhosa, paratyphoid A, paratyphoid B, OX19 (rickettsia), Brucella, P. tularensis and cold hemagglutinins were negative. The antistreptolysin-0 titer was less than 50 Todd units and the reaction for C-reactive protein 3 plus. The serum albumin was 4.9 gm. per 100 cc., serum globulin 2.2 gm. per 100 cc., the icterus index 5 units, thymol turbidity 7 units, cephalin flocculation 3 plus, alkaline phosphatase 11.2 Bodansky units and prothrombin time within normal range. No organisms grew on a culture of blood. Culture of material from the throat grew Staphylococcus aureus, coagulase-positive.

An electrocardiogram (Figure 2) showed a complete left bundle branch block.

In the hospital, the patient had intermittent low grade fever for five days, after which he remained afebrile. On the third hospital day, he received 20 cc. of gamma globulin intramuscularly.[3,4] On the fourth hospital day, generalized enlargement of lymph nodes was noted. The swelling disappeared within two days. On the tenth day, the patient complained of sore throat. The tonsils were red with small patches of white exudate on them. Another 10 cc. of gamma globulin was given. By the twelfth day, the throat had cleared and the patient felt well. He remained asymptomatic thereafter, was discharged on the 33rd day and returned to work two weeks later. Results of liver function tests had returned to normal by the time he returned to work. However, electrocardiograms—the most recent one (Figure 3) was made May 2, 1957—continued to show complete left bundle branch block.

SUMMARY

A case of infectious mononucleosis is presented in which complete left bundle branch block developed. The bundle branch block persisted after the patient clinically recovered. This is believed to be the first reported case of this complication.

Harbor General Hospital, Torrance.

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Intramedullary Hemangioma of the Spinal Cord

R. B. JACKSON, M.D., Menlo Park

THE OCCURRENCE of spinal cord hemangiomas limited to the intramedullary site is rare.[6] A recent report of nine cases of vascular malformations of the spinal cord[1] included two cases of intramedullary lesions and seven in which there were both intramedullary and extramedullary lesions. In 1926 Foix and Alajouanine[5] described progressive spinal cord destruction associated with intramedullary and extramedullary vessel abnormalities consisting of an increase in the number of vessels as well as thickening of the walls. No vascular occlusions or thrombi were noted. They termed this spinal cord involvement "subacute necrotic myelitis." Wyburn-Mason[9] said that subacute necrotic myelitis is a form of angioma racemosum venosum in which vessel changes in the substance of the cord are the primary lesion and vessel changes externally may not be evident.

In reviewing reports of these vascular malformations of the cord[1,2,5,6,7,8,9] the following characteristics were noted: Onset in middle age, predominantly in men: variable pains preceding the onset of paraplegia; paraplegia usually of the spastic type but progressing to flaccidity unless the lesion is focal; sensory involvement, which occurs later than paresis, is at first dissociated but becomes complete; frequently elevation of cerebrospinal fluid protein without pleocytosis; the course is usually subacute, with death occurring in one to two years; diagnosis of the lesion is possible if it is not limited to an intramedullary position, the myelographic appearance consisting of serpentine rarefactions in the column of Pantopaque.[3]

Treatment of vascular malformations of the cord has been successful only when the lesion is at least partially in an extramedullary position, with improvement occurring following surgical decompression but with no response to x-radiation.[4]

The pathologic changes are usually grossly apparent. There is an increase in the number of both arteries and veins and often they are tortuous and dilated. The vessels may be entirely extramedullary, more rarely intramedullary alone and most commonly both within and without the cord substance. The abnormal vessels may be extensively distributed, the entire cord being involved in some cases. Less commonly the lesion may be relatively focal—limited to one or two segments. On section the vessels may have thickened walls, some with almost complete obliteration of the lumen. Occasionally there are organized thrombi. Necrosis and malacia appears in the cord within the distribution of the vascular lesion, and at times there is syrinx formation.

From the Veterans Administration Hospital, Oakland.
Submitted December 12, 1956.

REPORT OF A CASE

A 58-year-old white man was admitted to the Veterans Administration Hospital, Oakland, for the first time on August 30, 1955, because of aching pain in the left upper quadrant of the abdomen for about two weeks. The pain was constant, was not related to meals and was not associated with nausea or vomiting. A few days after onset, the pain moved to the right side, then into the spine and gradually extended up between the shoulder blades and down into both arms. Two days before admission the patient noted weakness of the left leg and difficulty in urinating. There was no history of trauma.

The patient appeared chronically ill and was barely able to walk; the gait was spastic. Upon neurological examination the only sign of cranial nerve abnormality was that the pupils were somewhat sluggish in reacting to light. The upper extremities appeared to have normal strength, coordination and tone. Both lower extremities were weak, the left more so than the right. Deep tendon reflexes were hyperactive in all extremities. Ankle clonus was not elicited. Superficial abdominal reflexes were absent. Babinski's sign was present bilaterally. Pronounced tenderness to touch and pressure was noted over the right upper chest anteriorly but the sensitive area was not well demarcated. Pinprick perception was impaired below the eighth thoracic level on the right side.

No abnormalities were noted in the blood or urine on the day of admittance to hospital. A serologic test was negative for syphilis. The cerebrospinal fluid on the day following admission was faintly xanthochromic and clear. The pressure of the cerebrospinal fluid was 60 mm. of water. No evidence of blocking was evoked by the Queckenstedt maneuver. The fluid contained 5 lymphocytes per cu. mm. Total protein content was 56 mg. per 100 cc. The gold curve was 1122100000. The result of a Kolmer test was negative for syphilis.

In an x-ray film of the chest minimal pulmonary emphysema and slight increased density in the hilar areas were noted. X-ray films of the thoracic spine showed minimal scoliosis to the right, centered at the seventh vertebra. Slight hypertrophic fringing of the vertebral bodies was noted.

The patient's condition became worse rapidly. Within a week after admission there was complete loss of sensation below the second thoracic dermatome on the right and the eighth thoracic dermatome on the left. Both legs were completely paralyzed and were flaccid. Bladder control was completely absent. The patient continued to complain of severe pain in the right upper chest as well as in the left shoulder and arm. A myelogram four days after admission showed no evidence of block or defect in the opaque medium. Two weeks after admission the left hand was quite weak and sensory deficit became apparent in both arms up to the seventh cervical dermatome. An electroencephalogram tracing was "borderline"; there was some diffuse 5 to 7 per second activity, particularly over the frontal lobes. No abnormalities were noted in x-ray films of the skull.

The patient began to complain of deafness and upon evaluation a partial perceptive deafness bilaterally was noted.

Two months after admission, moderate hematemesis occurred and a Sippy diet and antacid drugs were prescribed. No evidence of an active ulcer was noted in roentgen studies, but there was deformity and irregularity of the duodenal area suggesting scar formation at the site of an old ulcer. Despite nursing care to prevent it, decubitus ulceration of the right hip developed four months after admission. A month later urinary tract infection occurred. It was resistant to all antibiotics.

Results of spinal fluid examination in January of 1956 showed it to be completely within normal limits. Urinary obstruction and urinary extravasation occurred, and suprapubic cystotomy and surgical incision and drainage were carried out. At that time the blood urea nitrogen was 19 mg. per 100 cc. The patient was febrile from then on and was confused and restless. On February 24, 1956, he became unresponsive and comatose. The next day he died.

Autopsy

At autopsy moderate aortic arteriosclerosis in the abdominal region was noted. There was pronounced erosion of the distal half of the esophageal mucosa, and a small abscess was present in the right kidney. Decubitus ulcers were present over both hips, the sacrum and the right ilium. Bronchopneumonia and congestion were noted in microscopic examination of lung tissue. The spleen showed pronounced hyalinization and subintimal thickening of smaller arterioles. In one of the adrenal glands a small vein was distended by a thrombus, with early organization.

In the brain there was some 20 cc. of clotted dark red blood in the subarachnoid space at the tip of the left frontal lobe and about 15 cc. of blood in the floor of the right middle fossa as well as about 10 cc. between the dura and arachnoid overlying the right temporoparietal lobes. The circle of Willis had no left posterior communicating artery. The

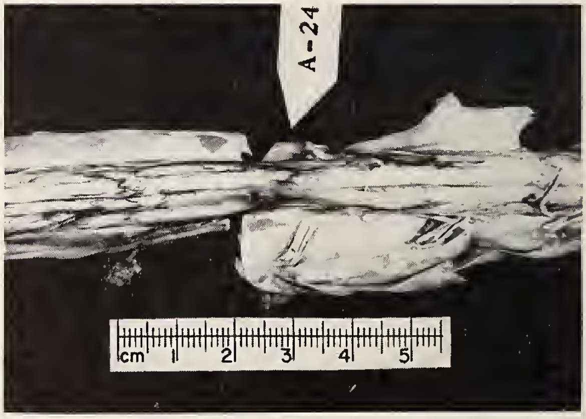

Figure 1.—Gross specimen of spinal cord showing narrowing at the fourth thoracic level.

brain weighed 1250 gm. Some medial degeneration of arterioles in the region of the internal capsule, with the deposition of a blue-black pigment in the media was observed in histologic examination. One small cyst-like area was noted near the cerebral cortex but involving the white matter, with the nearby surrounding vessels showing thickened and eosinophilic walls.

In the spinal cord a 1.5 cm. area of malacia was observed at the level of the fourth and fifth thoracic nerve roots. In this region the cord was 0.8 cm. in greatest diameter, while above and below this level it was 1.2 cm. (Figure 1). The surface of the cord was yellowish-brown in the narrowed area. A branch of the anterior spinal artery was distended and filled with blackish, old-appearing clotted blood at this level. At the fourth thoracic level the normal structure of the cord was almost completely obliterated by remaining necrotic cord substance and blood. As high as the sixth cervical segment there was discoloration and cavitation in the region of the central gray matter, more pronounced on the right side. Below the level of the fourth thoracic segment no gross changes were seen. Upon microscopic examination, finely vacuolated areas were observed in the posterior and lateral columns above the level of the lesion. A section (Figure 2) through the central portion of the primary lesion (at the fourth thoracic segment) showed diffuse degeneration of the normal cord tissue with a large cystic area which had an endothelial lining apparent in part of its margin. Numerous dilated blood vessels were present, some with irregularly thickened walls. Within two intramedullary blood vessels there were thrombi, one of which was undergoing organization (Figure 3). The thrombi did not completely occlude the vessels. No evidence of neoplastic or proliferative vascular activity was seen. The leptomeninges about this portion of the cord were decidedly thickened, although the vessels within the leptomeninges were not greatly changed. In sections of the cord above the lesion, extension of an area of degeneration upward into the cervical region was noted. There a small cyst-like cavitation was noted, surrounded by gliosis. Degeneration of the posterior columns, of spinocerebellar and spinothalamic tracts above the lesion and of the corticospinal tracts below the lesion was observed in myelin-stained and fat-stained sections.

* * *

The case reported could not be diagnosed with certainty on clinical grounds as being one of spinal cord hemangioma, although the neurological symptoms were like those previously reported in this condition. Differentiation from an intramedullary neoplastic or focal infectious lesion would have required exploration. Occlusion of an anterior spinal artery would produce a similar syndrome. Myelography was not helpful, since no extramedullary vessel malformation was present. The blood noted in intracranial spaces at autopsy remained unexplained.

Presumably the symptoms in this condition came about from a failure of the abnormal vessels to supply the circulatory demands of the spinal cord. The thickening of the vessels may be a progressive degenerative atheromatous change taking place locally within a system of abnormal vessels where the flow of blood has always been sluggish. Or it may be that this change occurs only in persons in whom generalized arteriosclerosis develops, the congenital malformation in the spinal cord being a site of least resistance to such degenerative vascular processes. The fact that neurologic symptoms are delayed in appearance until middle age while the essential lesion is a developmental anomaly is compatible with either of these theories.

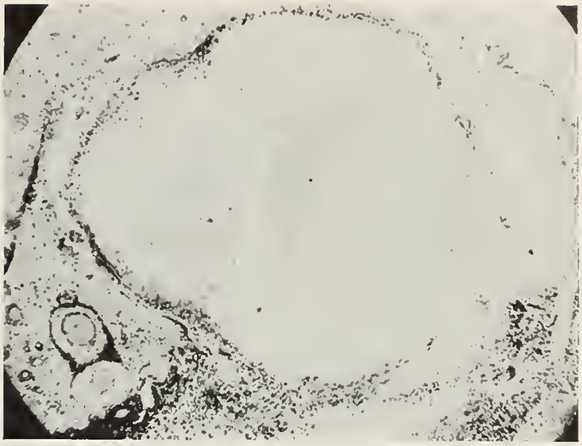

Figure 2.—Magnification of the cystic area at the fourth thoracic level. Its appearance, with an endothelial lining, suggests a dilated vascular channel. Two large vessels with thickened walls are present (Nissl stain, ×30).

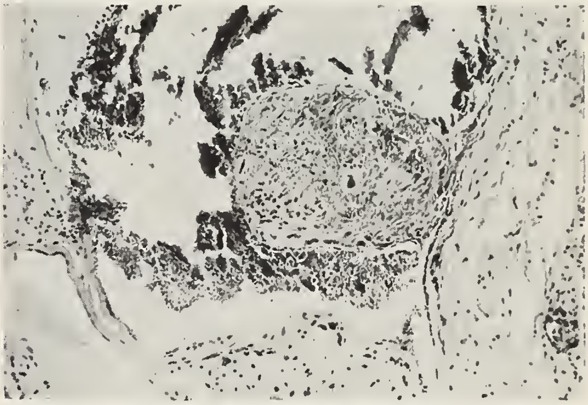

Figure 3.—Organized thrombus in a dilated blood vessel (Hematoxylin and eosin stain, ×100).

SUMMARY

A case of an intramedullary hemangioma with thickened and thrombotic vessels producing severe myelomalacia is reported.

1007 Willow Road, Menlo Park.

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Migration of Bullet in Gunshot Wound of the Brain

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TOM HUFF, M.D., Stockton, and
WARREN WASS, M.D., Lodi

In the case here reported a bullet fired from a rifle entered a boy's head in the right frontal region, coursed through the brain and came to rest in the left parietal region just beneath the skull, then in five weeks gradually returned to the point of entry.

The patient, a boy 8 years of age, was riding a bicycle, looking back over his shoulder at a companion who, running to catch up with him, tripped and fell, discharging a .22 caliber rifle. The bullet, after traveling a distance of 40 or 50 feet, struck the patient in the right forehead just below the hairline and he tumbled from the bicycle. He was semiconscious when picked up by his mother some 20 or 30 minutes later. About an hour after the accident the patient, stretched out on the back seat of an automobile, was observed by one of the authors. In a state of moderate shock, he was pallid and sweating and the pulse was weak. The patient said he had heard a shot and had fallen from the bicycle.

He was taken to the hospital for treatment, and evidence of shock subsided. Neurological examination was done several hours later and the boy then was conscious and rational. Reflexes were equal and active and the Babinski response was not evoked.

X-ray films of the skull showed the wound of entry in the right frontal region and the major portion of the bullet resting in the left parietal area, just under the bone. Fragments of the bullet were distributed from the point of entry to the point at which the major portion of the bullet came to rest. Fragments of the bone were present in the right frontal area adjacent to the point of entry.

Antibiotic therapy was administered and in the ensuing few hours no evidence of progressive neurological involvement developed. Early the following morning the wound of entry was opened and debrided. Devitalized brain tissue and a few fragments of bone and metal were removed. Then the wound was closed. Antibiotic and anticonvulsant therapy was administered and the patient recovered. There was no sign of neurological impairment and the patient was discharged from the hospital.

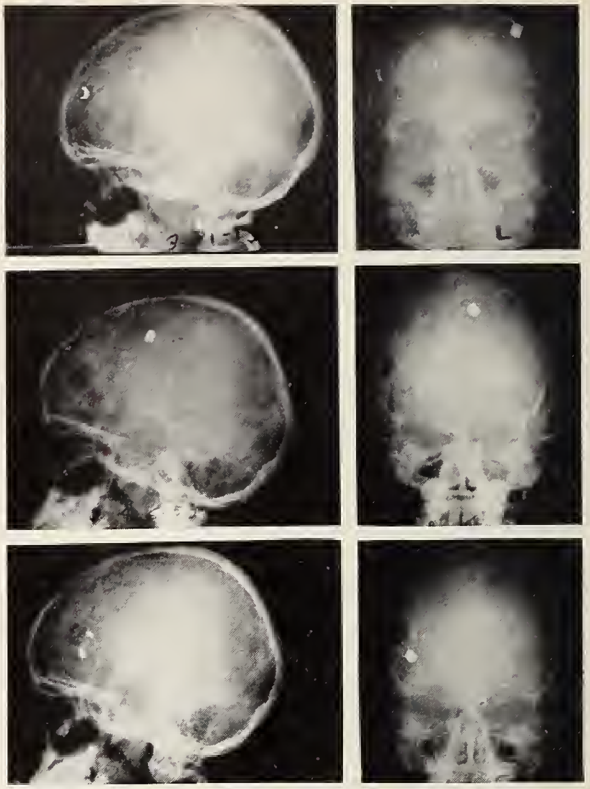

Figure 1.—*Top row:* X-ray films on day of accident, showing fragments of lead along course of bullet from point of entry in right forehead to point at which major portion came to rest against skull on left side. *Center:* Films taken a week later, after fragments of slug had been removed, showing main body of bullet returned part way along course of penetration. *Lower:* Five weeks after the accident, bullet almost back to point of entry.

Anticonvulsant therapy was continued. X-ray films taken at intervals thereafter showed the bullet to be migrating back toward the point of entrance. Although no attempt was made to keep the patient prone while asleep, he was instructed to lie in the prone position while awake and to jar his head gently against the bedding from time to time. Approximately five weeks after the accident, the bullet had returned almost to the point at which it had entered. Thereupon the main portion and a fragment of the bullet and several fragments of bone were removed from a point just inside the skull.

In the next year and a half no evidence of residual injury to the brain developed. No abnormalities were noted upon examination and the parents reported no changes in disposition or in personality. The patient returned to school, where he adjusted to classroom routine and appeared to have no loss of retentiveness.

315 West Pine Street, Lodi (Thompson).

Submitted January 24, 1957.

Gas Cysts of the Intestine

Report of a Case

JAMES M. MARSHALL, M.D., Pasadena

GAS CYSTS OF THE INTESTINE is an extremely rare condition but so characteristic are the symptoms, especially those visible on x-ray films, that the correct diagnosis should be made before operation more frequently. The fact that only five cases have been diagnosed preoperatively in this country[1] eloquently emphasizes the general lack of knowledge of this condition.

John Hunter first mentioned the condition in the eighteenth century but the first satisfactory report was by Bang who in 1876 described the condition in hogs. There are several reports in the literature variously naming the disease "gas cysts of the intestine," "abdominal gas cysts" and "pneumatosis cystoides intestinalis." Gas cysts may occur anywhere along the gastrointestinal tract from the esophagus to the rectum, apparently most commonly along the small bowel and quite rarely in the colon. They have been reported in adhesions between loops of bowel,[3] and possibly the same disease has been observed in the vagina and urinary bladder.[1] The cysts, which are very thin walled, may occur in all layers of the bowel, may bulge submucously or subserously and may spontaneously rupture into the lumen or into the peritoneal cavity, causing pneumoperitoneum—but not peritonitis. They are tensely filled with a sterile, odorless gas that differs in chemical composition from ordinary air or the common intestinal gases.[6]

The cause of this condition is unknown. Various theories have been advanced including bacterial infection, mechanical trauma, neoplastic invasion and chemical deficiency. The highest incidence is in men between 30 and 50 years of age but the disease may occur in either sex at any age. Several observers[3,4,5] have emphasized the coexistence of other gastrointestinal disease, most commonly peptic ulcer with obstruction.

There are no definite symptoms common to this condition as such, but rather they are due in each case to the number, size and location of the cysts. Obstruction and a palpable mass are possibilities.

It should be relatively easy to make a correct diagnosis in most cases by x-ray visualization, provided the possibility of gas cysts is brought to mind, for they cast so characteristic a shadow of confined gas. Carter and Wilson,[1] however, noted that in only five of 45 cases reported in the American literature was the diagnosis made before operation. In the case herein reported, what with hundreds of cysts along the colon wall showing clearly in the films and the characteristic serrated barium margins and surrounding gas halo clearly visible, it seems incredible that the diagnosis was missed.

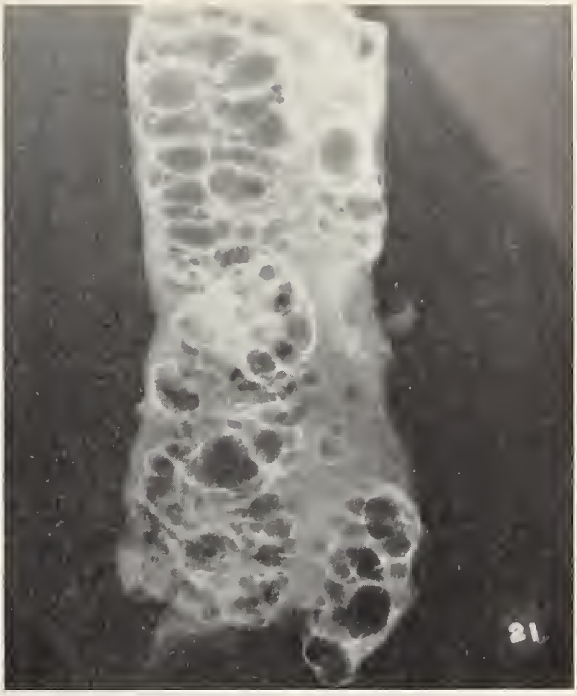

Figure 1.—X-ray film of a portion of the resected sigmoid, showing the gas cysts.

CASE REPORT

The patient was a 70-year-old man with hypertensive heart disease who had had moderate cardiac decompensation periodically for five years. He had complained of constipation and gaseous bloating for six months and on a few occasions had passed a small amount of bright blood with the stool. He had considerable gas in the bowels and his wife said that she had heard him pass gas sometimes, but the patient insisted he had not. There had been no loss of weight.

The blood pressure was 178/98 mm. of mercury and the pulse rate 80. The heart rate was regular and there were no murmurs. The abdomen was moderately distended and tympanitic but no organs or masses were palpable. There was a healed 8 cm. suprapubic scar from prostatectomy done in 1951. The blood contained 16.6 gm. of hemoglobin per 100 cc., 6,200,000 erythrocytes per cu. mm. and 7,500 leukocytes per cu. mm. with the cell differential within normal limits. The urine contained a trace of albumin.

Upon proctoscopic examination for 14 cm. no abnormality except moderate sized hemorrhoids was observed. Roentgen studies with barium enema showed a polypoid filling defect in the midsigmoid with partial obstruction. Considerable collections of gas were noted in the left colon. A diagnosis was made of a polypoid neoplasm of the sigmoid with partial obstruction.

Laparotomy was carried out. From the midtransverse colon to the rectosigmoid 5 cm. above the peritoneal reflection, the wall of the colon was almost solidly packed with hundreds of cysts up to 3

Submitted November 29, 1956.

cm. in diameter, apparently including all layers of the bowel as well as the complete circumference. The gross appearance was very much like that of an elongated hydatidiform mole (Figure 1). Palpable in the midsigmoid was a 6 cm. mass in the lumen which was causing a considerable degree of obstruction. There were no enlarged lymph nodes and no evidence of hepatic metastasis. The stomach, entire small bowel and right half of the colon were normal. In the belief that the obstructing lesion in the sigmoid was most likely a polypous carcinoma, the entire sigmoid with its mesentery was resected and end-to-end anastomosis of the descending colon to the rectosigmoid 5 cm. above the pelvic cul de sac was done. At the proximal line of resection it was necessary to cut through several cysts, and to complete the collapse six or eight more were aspirated with a small needle passed through the serosal surface. The sutures for the anastomosis were, of necessity, passed directly through the collapsed cysts. Convalescence was uneventful and the patient left the hospital on the ninth postoperative day with normal bowel function and healed wound.

Pathologist's Report

The specimen was a segment of colon 25 cm. in length. The mucosal surface was of unusual appearance. It was studded with vesicular elevations up to 5 cm. in diameter. The elevations were covered by dimpled pale tan mucosa. There were deep crevices in the mucosa between the closely set bullae. Only a very small portion of the mucosa was free of this change. In sections enormous air-filled spaces, apparently contained within the submucosa and covered by intact mucosa, were noted. The change extended to both lines of excision. Three of the bullae there were hemorrhagic patches up to 1 cm. in diameter but no areas of frank erosion were noted. The sections showed well-defined layers, the pale muscle being easily identified overlying the bullae. There was no appreciable edema or evidence of exudate in the bowel on section. The filling of the bowel wall by gas was evidenced by the fact that light shone through the bullae, and cut sections of gas-containing tissue floated in fixative. The bullae resisted rupture and the bowel wall did not crepitate on pressure.

Upon microscopic examination of sections, large empty cysts occupying the submucosa and impinging upon the muscle were observed. The cysts in places had a denuded fibrous lining, while elsewhere in the lining there were large mononuclear cells and flattened multinucleated giant cells. No foreign matter was seen. A condensation of fibrous tissue around the cysts was noted in specimens treated with an elastic tissue stain. A few elastic fibers were noted in the cyst walls, which suggested, although not conclusively, that the spaces could be enormously dilated lymphatic vessels. There was no appreciable inflammation of submucosal tissue around the cysts. The mucosa was intact and contained normal large colonic mucous glands. There was fresh hemorrhage, probably surgically caused, in portions of the mucosa. The muscle was entirely unaltered except where cysts extended into it. The subserosa and serosa were quite free of inflammation or cyst formation. There was no evidence of malignant change.

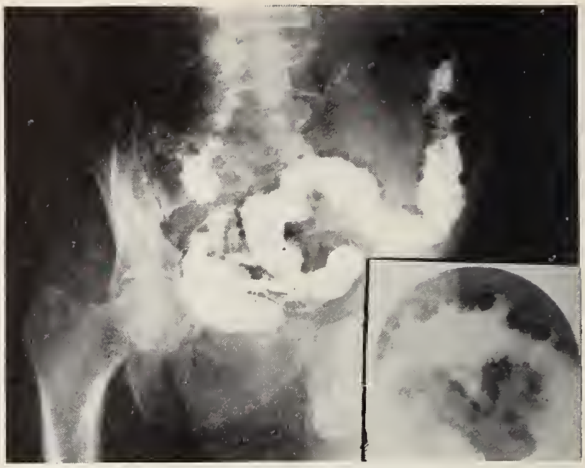

Figure 2.—Barium enema studies of the colon showing the characteristic gas "halo" and the filling defect in the proximal sigmoid.

When last examined, three and a half years after the operation, the patient was well except for moderate gaseous indigestion and still limited cardiac reserve. Barium enema studies showed gas cysts of the left colon up to the midtransverse colon about the same as they appeared three months after the operation. Upper gastrointestinal x-ray studies at the time of last examination showed a 2.5 cm. diverticulum of the second portion of the duodenum which had not been previously observed. There was no clinical or roentgenographic evidence of ulcer or neoplasm in the stomach or duodenum.

One interesting feature of this case was the conglomerate group of submucous cysts in the midsigmoid, suggesting neoplasm. Diagnosis of the basic cystic disease should have been easily made preoperatively from the x-ray films (Figure 2). However, in the absence of correct diagnosis the filling defect shown by x-ray, associated with bleeding and obstruction, was clear indication for surgical intervention.

123 Congress Street, Pasadena 2.

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EDITORIAL

Principles of Medical Ethics

THE JUST-CONCLUDED annual meeting of the American Medical Association, if it did nothing else, came to grips with the broad subject of medical ethics and came out with a workable document.

This is not to decry the other manifold accomplishments of the session, but if a spotlight is to be shone on the outstanding accomplishment of the A.M.A. House of Delegates, the new statement of medicine's moral and professional obligations should be the one action to take a bow.

The Principles of Medical Ethics of the American Medical Association have been in effect for many years. They were initially established to furnish a guide to physicians in the conduct of their practices and of themselves in their dealings with patients, the community and other physicians. They did not constitute a set of statutes but served primarily as a compilation of moral principles. In this sense the stated principles have followed Webster's definition of the word as "a treatise on morals," "the science of moral duties," and "moral principles, duties and practice."

Once the Principles of Medical Ethics were adopted by the American Medical Association, representing the great body of the medical profession in the country, state medical societies adopted them as the standards to govern within their own borders. County societies, in turn, took similar action by referring to these standards either in terms of the A.M.A. or of their parent state associations.

When these successive actions had been taken, the disciplining of medical society members was rightfully left in the hands of the local or county societies. Members could be judged by their peers in their own communities, according to local standards and under broad standards of behavior known to and recognized by all physicians in medical organizations.

Disciplinary proceedings alleging violation of one or more sections of the Principles of Medical Ethics, have been brought against medical society members in all parts of the country over a long period of years. The general course, which is followed in California, is for the original charges to be brought and heard before an appropriate body in the county society. When that body has reached its decision, the state association is available as an appeal body to either party. In turn, the Judicial Council of the A.M.A. is further available as a sort of Supreme Court, authorized to act on questions of procedure, but not fact, in appeals taken from state association decisions.

Under this setup the individual member is assured of his right to be heard, to face his accusers, and to appeal from any decision which he believes unjust. After he has exhausted his appeals within the framework of medical organizations, he may still appeal to his state courts for relief from decisions which he believes unwarranted in the light of the facts.

In the many cases which have been brought before the A.M.A. Judicial Council over a long span of time, individual circumstances have varied widely. Procedures in many county or state medical societies have not been uniform, nor have the charges placed against individual members. The result of this widespread variation has been, of course, to clutter up the records with multitudinous decisions which, taken one at a time, may appear sound but which, in the aggregate, may easily appear to be inconsistent with each other or even with the basic principles under which the charges have been brought.

To correct this situation the A.M.A. started several years ago on a two-pronged campaign. First, it was obvious that the decisions of the Judicial Council must be catalogued, classified and codified. Such an act would offer a "body of law" which could be made available to members. Second, the Principles of

Medical Ethics must be revised to put them into plain, understandable language and to rid them of many appendages which had been inserted by amendment, often as the result of one specific disciplinary case.

The codification of Judicial Council decisions has now been completed by the A.M.A. Law Department. This in itself has been a monumental task.

With this codification complete, the Principles of Medical Ethics could be stripped of their excess verbiage and reduced to a brief statement of moral attitudes for physicians.

Two years ago a special committee of the A.M.A. presented such a proposed statement for a new set of Principles. The committee statement was hailed as a clear, concise and readable document but was found somewhat ambiguous in two of its ten paragraphs. These have now been revised, with the assistance of many interested physicians and medical organizations, and have been adopted as the official policy of the A.M.A. They are printed elsewhere in this issue.

The preamble to the ten paragraphs is worthy of note here. It states that "these principles are intended to aid physicians individually and collectively in maintaining a high level of ethical conduct. They are not laws but standards by which a physician may determine the propriety of his conduct in his relationship with patients, with colleagues, with members of allied professions, and with the public."

It is noteworthy that the ten paragraphs following the preamble cover all actions and activities of physicians and furnish a background against which the actions of any individual may be judged. It is also evident that the principles have been couched in language which is at once plain and nonrestrictive. There is ample room for the interpretation of these principles in terms of local standards. What may be considered ethical in one area may be found just opposite in another.

Commonly referred to as "The Ten Commandments," the new Principles of Medical Ethics strike a direct blow against practices which the medical community believes out of keeping with the moral standards of the profession. At the same time, they offer a yardstick for the measurement of right or wrong and present every physician with a brief and pointed set of the standards by which he may be judged by his fellows.

The A.M.A. has performed a valuable public service in adopting this new document. It has, simultaneously, given the public a plain statement of what to expect from physicians and given the physicians a mirror into which to look for their own behavior. Together with the codified decisions of the Judicial Council, the new Principles of Medical Ethics represent a long step forward in the self-policing of the medical profession by which medical standards may be continued on the highest possible plane.

Twelve Short Years

When Doctor Dwight Harrison Murray of Napa, California, handed over the gavel as President of the American Medical Association to his successor early last month, he completed an even twelve years of service with—and for—the A.M.A.

"Murph" started his medical society career in typical fashion, as a committee member and later secretary and still later president of his county medical society. The grass roots influence took hold of him in his early years of general practice in Napa and led him, step by step, to the highest office an American physician can aspire to.

From Napa County he went as a Delegate to the California Medical Association. There he broadened his vision to the borders of a large state rather than just one of its fifty-eight counties. So successful was he in his grasp of state affairs that in 1940 he was chosen as legislative chairman for the C.M.A., one of the most important committee posts the state organization has to offer. After two most successful years in that spot he was elected as one of California's eight Delegates to the A.M.A., where he started serving in the House of Delegates in 1943.

Between that start and his election to the A.M.A. Board of Trustees in 1945 he sandwiched in such events as the establishment of the United Public Health League and the inauguration in Washington of the first medical representation office in the national capital.

His A.M.A. official career started with the close of the A.M.A. annual session of 1945, when he easily outdistanced competitive candidates for a seat with "the nine old men," as the A.M.A. Trustees were then labeled.

The rejuvenating influence on the Trustees which seemed to start all at once may not all be attributable to Murph but it is certain he was in the middle of it. An assay of that board published by a national medical journal in about 1947 pointed to Dwight H. Murray as the A.M.A. Trustee who sat quietly by, listening to all points of view, and then started off with—"Just a minute, now; let's take a good look at this."

That his sound judgment and dedication to the highest ideals of medicine were heeded by his colleagues was proved in 1951, when he was elected Chairman of the Board of Trustees of A.M.A. For the next four years he presided over that body, carefully steering the proper course for American medicine and avoiding the pitfalls which had entrapped other worthy, but possibly less worldly, physicians. His term as board chairman was ended in 1955, when the A.M.A. House of Delegates picked him as President-Elect.

For the past two years Murph has spent by far the larger part of his time as the Number One representative of the A.M.A. His travels have taken him to all parts of the world. He has been honored with honorary memberships, scrolls, plaques and even honorary college degrees. While these encomiums are pleasing, it has always been obvious that Dwight Murray accepted them in behalf of the typical American physician, a role he occupies with such distinction.

We welcome Murph back to California for a greater share of his time. We know that his colleagues, his friends and his patients will likewise welcome his return in the knowledge that he has added greatly to the lustre and standing of American medicine and has, in twelve short years, left things a lot better than he found them.

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About the Cost of Good Medical Care...

While I know you understand that I, as your personal physician, am not in complete control of all medical care costs, I still would like to emphasize a few facts:

From your own experience you know that not-so-serious cases usually involve nothing more than the moderate expense of home or office visits and medication.

It is when serious illnesses or accidents require hospitalization that we may run into financial problems. Hospital charges, special nurses, drugs and appliances are all factors over which I have no *direct control.*

That is why it is my sincere hope that, should the need ever arise, you'll look upon me not only as your personal physician but also as a sort of "health engineer." In that capacity I am at your service to assist you in making arrangements for the best of medical care on the most reasonable financial basis possible.

I take those precautions when I am ill or when a member of my family requires extensive care. The same services are available to you.

Sincerely yours,

______________________________, M.D.

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PRINCIPLES OF MEDICAL ETHICS

OF THE AMERICAN MEDICAL ASSOCIATION

THESE principles are intended to aid physicians individually and collectively in maintaining a high level of ethical conduct. They are not laws but standards by which a physician may determine the propriety of his conduct in his relationship with patients, with colleagues, with members of allied professions, and with the public.

1 The principal objective of the medical profession is to render service to humanity with full respect for the dignity of man. Physicians should merit the confidence of patients entrusted to their care, rendering to each a full measure of service and devotion.

2 Physicians should strive continually to improve medical knowledge and skill, and should make available to their patients and colleagues the benefits of their professional attainments.

3 A physician should practice a method of healing founded on a scientific basis; and he should not voluntarily associate professionally with anyone who violates this principle.

4 The medical profession should safeguard the public and itself against physicians deficient in moral character or professional competence. Physicians should observe all laws, uphold the dignity and honor of the profession and accept its self-imposed disciplines. They should expose, without hesitation, illegal or unethical conduct of fellow members of the profession.

5 A physician may choose whom he will serve. In an emergency, however, he should render service to the best of his ability. Having undertaken the care of a patient, he may not neglect him; and unless he has been discharged he may discontinue his services only after giving adequate notice. He should not solicit patients.

6 A physician should not dispose of his services under terms or conditions which tend to interfere with or impair the free and complete exercise of his medical judgment and skill or tend to cause a deterioration of the quality of medical care.

7 In the practice of medicine a physician should limit the source of his professional income to medical services actually rendered by him, or under his supervision, to his patients. His fee should be commensurate with the services rendered and the patient's ability to pay. He should neither pay nor receive a commission for referral of patients. Drugs, remedies or appliances may be dispensed or supplied by the physician provided it is in the best interests of the patient.

8 A physician should seek consultation upon request; in doubtful or difficult cases; or whenever it appears that the quality of medical service may be enhanced thereby.

9 A physician may not reveal the confidences entrusted to him in the course of medical attendance, or the deficiencies he may observe in the character of patients, unless he is required to do so by law or unless it becomes necessary in order to protect the welfare of the individual or of the community.

10 The honored ideals of the medical profession imply that the responsibilities of the physician extend not only to the individual, but also to society where these responsibilities deserve his interest and participation in activities which have the purpose of improving both the health and the well-being of the individual and the community.

The House of Delegates of the American Medical Association at the 1957 Annual Meeting approved the long-discussed restatement of Principles of Medical Ethics, originally submitted at the 1956 annual meeting. The final version was presented by the Council on Constitution and Bylaws and then amended by reference committee and House discussions in New York.

California MEDICAL ASSOCIATION

NOTICES & REPORTS

Medical Practice by Faculty Members

Report of the Special Committee on the Private Practice of Medicine by Medical School Faculty Members to the House of Delegates of the California Medical Association, April 28, 1957

> *Note:* The following report, with an amendment of Point 9 with regard to publicity, as noted herein, was accepted by the House of Delegates. Since it now becomes a basis of policy of the California Medical Association on a matter of celebrated controversy, it is printed here as a matter of immediate interest to members of this Association and for the information to other medical organizations currently dealing with similar problems.

INTRODUCTION

Mr. Speaker and Members of the House of Delegates:

At the 1956 Annual Meeting of the House of Delegates, a resolution (No. 6 introduced by Jay J. Crane, M.D., and amended by the House) was referred to the Council calling for a study of the private practice of medicine by faculty members of medical schools or other physicians whose facilities are provided for them by tax-supported or by private institutions.

The Council appointed a special committee to conduct this study. On it were representatives of the volunteer clinical faculties of four medical schools, the dean of one of the schools, two physicians in private practice (general practice) and a member of the Council.

By way of background information, we should like to call to your attention a resolution adopted by this House in 1955 regarding the subsidy of medical practice by tax-supported institutions. An amendment to this resolution urged the A.M.A. to make a thorough study of the conditions and practices existing nationwide. The Council on Medical Services of the A.M.A. did make such a study, and its findings and recommendations were adopted by the A.M.A. House of Delegates in June of 1956. Your committee gave that report careful consideration and noted that the findings and recommendations of the report must be interpreted in the light of local conditions and practices.

I

PROBLEMS

There are many problems to be considered in reaching any conclusions regarding the best way to find solutions that are mutually agreeable to practicing physicians and the faculty members of medical schools. The principal ones are:

1. Private practice of medicine by full time faculty members in the clinical sciences with consideration of such things as limitation of income, payment of overhead expenses, legal aspects of the use of facilities of tax-supported or other institutions;

2. The sources of patients consulting full time faculty members, and particularly those admitted to teaching wards and services, including part-pay patients who may carry hospital or medical care insurance for professional services. An allied problem is the disposition of monies received for medical

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care rendered by the members of the absolute and geographic full time clinical faculty (see definitions, page 53), resident staff, or by the staff of the medical school;

3. Problems of publicity, in newspapers and other publications read by nonprofessional audiences, which is received by members of the clinical faculty by virtue of the fact that they are members of the faculty.

4. The potential effect of changes on the present system of medical education if resolution No. 6 as introduced were adopted.

These seemed to be the questions of greatest concern to both the practicing physicians and the medical schools.

II

METHOD OF STUDY

Your committee as a whole determined that the method of its study would be as follows:

1. To consider the existing relationship between the C.M.A. and the medical schools in California and the respective county societies in which they exist.

2. To review published information on this subject, particularly the report of the Council on Medical Service to the A.M.A. House of Delegates, June 1956.

3. In the light of this A.M.A. report, to study methods and policies regarding private practice of full time faculty members in each of the five medical schools in the state, and in a number of other medical schools throughout the country.

4. To hold two open-hearing meetings, one in San Francisco and one in Los Angeles, at which members of the C.M.A. and of faculties of the medical schools in California could present their views to the committee.

III

The resolution referred to the Council by the House of Delegates last year requested that yearly reports be rendered by this committee. This, then, is our first report.

In order to keep it as brief as possible, much of the material on which the committee based its conclusions is listed in the Appendix or noted in the Bibliography.

* * *

The committee wishes to express its thanks to the deans of the five medical schools for their support, cooperation and assistance. They have all been most helpful in supplying information and in answering the questions of the committee. The committee also wishes to commend the county medical societies for their efforts in establishing closer liaison with the schools in their areas. It is, ultimately, through joint efforts such as the committee has observed, that the final solutions will evolve.

IV

THE ROLE OF THE CALIFORNIA MEDICAL ASSOCIATION, COUNTY MEDICAL SOCIETIES AND PRIVATE PHYSICIAN IN MEDICAL EDUCATION

The five medical schools in California graduate approximately 336 physicians each year. Our medical schools and profession can well be proud of the high caliber and excellent training of present day graduates. Medical education must be, and is being, kept at a high level for the protection of the public and for the betterment of the entire profession. The medical schools have consistently maintained high standards of education and should continue to do so. These standards require a high quality of teaching, high quality in practice, and the utmost development of the art and science of medicine.

The level of the practice of medicine in the state tomorrow depends upon the level of medical education.

Practicing physicians have a great interest in medical schools, which are the center of medical education and research. This interest has been shown by the actions of the California Medical Association, county medical societies and California physicians as individuals. For example, the California Medical Association has for several years:

1. Contributed large sums of money to the American Medical Education Foundation and, through that organization, to the California medical schools.

2. The Woman's Auxiliary to the C.M.A. has contributed over $25,000 to the A.M.E.F. throughout the last five years. This Foundation remains one of the Auxiliary's major projects.

3. Contributed annually to the support of the Lane Medical Library of Stanford University School of Medicine in San Francisco, and to the library of the Los Angeles County Medical Association.

4. Sponsored annual medical student meetings in the northern and southern parts of the state. These meetings emphasize phases of private practice, ethics, law and other matters of importance to the student.

5. Annually paid all expenses for two student delegates of each school in the state to attend the sessions of this House of Delegates.

6. Annually paid all expenses for two student delegates of each school in the state to attend the meetings of the Student American Medical Association.

7. Extended invitations to the deans of the five medical schools, or their representatives, to attend all meetings of the Council at C.M.A. expense.

The California Medical Association, as an organization, then, has aided and should continue to aid the medical schools and the medical students, so that standards of medical practice will be high and the physicians of tomorrow will be outstanding. The C.M.A. also should continue to inform medical schools and students of the purposes of organized medicine, what it stands for, and above all else, what are the essentials of private practice and of medical ethics. The most logical place for the student to acquire information and education of this kind is in the medical school, provided the clinical faculty is properly schooled in these essential elements.

County medical societies are participating also in furthering the education of students. Several societies have established loan funds, have assisted young physicians in establishing a private practice, and have participated in young students' committees and preceptor programs.

Many individual physicians have made material contributions to the welfare of the medical schools or the students. They have done this by:

1. Contributing to the financial support of their alma mater either by means of direct contributions or through individual contributions to the A.M.E.F.
2. Referring patients to teaching services.
3. Participating in preceptorship programs.
4. Contributing their time to the schools as faculty members.

It is evident that physicians in private practice are aware of their responsibilities to medical education per se, but perhaps the practitioners' potential for contribution to education has not been fully recognized by the teaching institution or by the profession generally. The physician in private practice can further meet his educational responsibilities by more readily making himself and his patients available for study by the student so that the student may better understand how medicine is practiced outside the hospital or school. Doing this helps the student obtain a better understanding of the physician-patient relationship, of office management, of medical economics, of public relations and other matters which will enable him to fit into the medical community of his choice.

The practicing physician can also aid medical education by referring more patients of teaching value to the medical schools. Both student and physician can benefit by this practice if the physician takes part in the disposition of the cases referred.

To support our schools and students and, at the same time, to limit good, effective medical education is incongruous.

* * *

It is inevitable that differing points of view should develop between physicians in practice and those oriented to education in medical schools. Their scholastic closeness to advances in medical science and their often intimate concern with research projects tend to cause the faculties of medical schools to become insular communities within themselves, to become remote and to be removed from the necessary close relationship which should exist between faculty members and physicians in private practice. To prevent this tendency from becoming detrimental to those groups, to high standards of medical practice and to good sound medical economics, it is essential that the majority of full time faculty members engage in some practice and that the clinical faculty of the medical schools be strong.

If this relationship ceases to exist, it is to the detriment of the medical student and his education. Furthermore the clinical faculty member must retain and practice those elements which make up good physician-patient relations and public relations. How else can they and the students be aware of the attitudes, ideals and objectives of organized medicine, and the needs of the practice of medicine?

V

DEFINITIONS

In order to eliminate any misunderstanding about definitions or terms used in this report, the committee adopted the following classification of medical school faculty members:

A. Full Time Faculty

a. *Geographic full time.* A geographic full time faculty member is one who has medical school service as a major interest. He receives a salary from the medical school and usually conducts part time private practice from facilities of the medical school.

b. *Absolute full time.* An absolute full time faculty member is one who devotes all his time to the service of the medical school and receives all his professional compensation from a salary paid by the medical school. He has consultation privileges, but no charge for his professional services is made by or to anyone.

c. *Practicing full time.* A practicing full time faculty member is one who devotes all his time to the service of the medical school, for which he receives a salary from the school. This salary, in whole or in part, is derived from professional fees collected from patients of the faculty member himself or his associates, all of which are collected by or turned over to the university or medical school.

B. Part Time Faculty

a. *Part time salaried faculty.* A part time salaried faculty member is one who has private practice as his major interest, utilizes medical school facilities for teaching, and conducts his private practice from his own office elsewhere. He receives a salary or stipend from the medical school.

b. *Volunteer faculty.* A volunteer faculty member is one who is a member of the faculty, yet receives no salary for his services to the medical school. His major interest is in private practice.

VI

COMPENSATION OF FACULTY MEMBERS IN THE CLINICAL SCIENCES

1. *Absolute full time.* The committee favors, for each medical school, a small core or group of adequately compensated absolute full time faculty members in the clinical sciences. The primary interest of this group would be in research and teaching and not in practice.

> **The committee recommends that the salaries for the absolute full time group come from sources other than the practice of medicine, such as university endowment grant funds, research or educational grants or alumni funds.**

2. *Practicing full time.* The committee does not look favorably on the establishment of a practicing full time faculty group as defined in this report. The primary interest of such a group almost inevitably turns toward practice and not toward teaching, which rapidly becomes of secondary importance.

3. *Geographic full time.* Where the university or medical school is unable to pay an adequate salary to the absolute full time faculty member, he should then become a geographic full time faculty member, with his major interest in teaching and research in the medical school and a minor interest in private practice. In those institutions where a clinical faculty member on a geographic full time basis receives some income from private practice, the committee is of the opinion that he is a better teacher of medical students retaining his relationships with physicians in private practice and with patients, as well as supplementing his income. The committee recognizes that in order to maintain his primary interest in teaching and research and not in practice, there should be some form of limitation placed on the amount of private practice that the geographic full time faculty should participate in; such limitation to be in terms of time allotted to practice (e.g. 25 per cent) or as to total income. Any such limitations must be an administrative decision of the medical school.

The committee observed that it is the custom in some schools for the institution to receive all funds paid to its geographic full time clinical faculty members for professional services above the income limits established by the institution. The committee believes, with the Council on Medical Services of the A.M.A., that funds received from the private practice of medicine by salaried members of the full time faculty of a medical school or hospital should not accrue to the general budget of the institution, and that the initial disposition of fees for medical services from paying patients should be under the direct control of the physician or physicians rendering the service. As Davison has so well expressed it, "By this method the doctor practices medicine, sends his own bills, collects his own fees, and says what will be done with the money obtained."

The committee believes that these principles of limitation should apply to all branches of medicine, including radiology and pathology.

> **The committee recommends that any funds or professional fees received by a geographic full time faculty member beyond that limitation established by the administration of the medical school should accrue to the individual physician, and that the disposition of those funds or fees should be under his personal control, not that of the medical school or hospital administrator, as long as the physician does not benefit personally and is not placed in a position of personal advantage in competition with private practitioners of medicine.**

In any consideration of the classification and duties of a faculty member, the following quotation from a report of the University of Michigan seems particularly appropriate:

"In the medical school both absolute full time and geographic full time men hold responsible positions in the clinical departments. It is impossible to distinguish one from the other in terms of service to the school, from the standpoint of teaching qualifications, scholarly productivity or in the care of the sick. Since the school was organized more than a century ago, its administrators have assumed that both plans are consistent with American ideals and the best interests of the University. They hold to the belief that the fate of the Medical School does not depend upon complete full time or geographic full time, but on the will and spirit of its faculty."

> **The committee recommends that the geographic full time clinical faculty members should reimburse their medical institutions for overhead expenses when facilities for private practice are supplied by the institutions.**

VII

SOURCE OF PATIENTS

In the course of its hearings and studies, the committee was impressed by the feeling among practitioners regarding the matter of patient referral to medical school absolute and geographic full time faculty members and the care and treatment by medical institutions of people within the community or area who are commonly referred to as "walk-ins."

The committee recognizes that the public has come to look upon the medical school as a place of outstanding medical and scientific progress and knowledge. Some persons may be of the opinion that physicians not attached to medical schools are not as well qualified or as well equipped to handle a particular problem as are the members of a medical school faculty. The committee is of the opinion that a preference for the academic life to that of private practice is not in itself the sole criterion to be used in judging ability and skill.

Tax-supported institutions, because of their public position, must of necessity follow an open door policy to a limited degree. However, in areas where similar facilities and physicians of equal skill and ability are available to the public:

> **The committee endorses the principle that it is desirable that all patients coming to a geographic full time clinical faculty member be on a referred basis.**
>
> **The committee recommends that the policies of the medical institution should tend more toward referred patients and less toward "walk-in" patients, and that this philosophy should be encouraged and fostered.**
>
> **The committee recommends that all patients admitted to a medical school hospital be used as teaching patients. This recommendation should apply to referred, part, pay or any other class of patients who receive care in a tax-supported institution from or by an absolute full time or geographic full time faculty member.**

Part-Time Teaching Patients

The rapid growth of medical care insurance has brought about a reduction in the number of teaching patients coming to or referred to the medical schools as medically indigent or of a marginal economic status. An ever increasing number of people admitted to the medical schools as teaching or part-pay patients have some type of medical insurance which provides, in whole or in part, for a professional fee.

Studies of the practice in this and other states by Blue Shield-Blue Cross and insurance companies show a wide variety of practices in the payment of professional fees for ward or teaching service cases. In some instances, they are neither paid nor collected. Where received, fees may be diverted to the institution general fund, to a separate trust fund, to a free bed fund, to a departmental fund, to the teaching ward service, to defray the costs of sending junior staff members to meetings or to medical library or research funds. Further study is needed in this area, because of the many ethical, legal, tax and medical problems involved. Collection of professional fees for such services would be, in general, a break with a tradition of long standing established before the principle of insurance was inaugurated.

> **For the present the committee recommends that if the patient is of teaching value or is receiving clinic services and has insurance which provides for a professional fee, a fee should be collected.**
>
> **It is recommended that:**
>
> **1. Any such funds collected from insurance sources should be turned over to an educational fund, held in trust by an unincorporated association composed of the faculty of the medical school. Such an association might assume the responsibility of receiving such funds direct from an insurance carrier provided the individual physician should so designate.**
>
> **2. The monies held in the educational fund, under the direction of a board of trustees of the association, should be used to further and support educational programs in the medical and health sciences for undergraduate and postgraduate students in the respective schools of medicine, and their various departments.**
>
> **3. In no circumstances should any part of the fund inure to the personal benefit of any members of the medical staff or to the general budget of the institution; nor should it be used to carry on propaganda or be used in any political or legislative campaign.**

VIII

PUBLICITY

The committee was impressed by the sincerity of many of the members of the Association who appeared before it and expressed feelings regarding one of the most pressing matters causing misunderstandings between medical schools and private practitioners. This is closely related to the matter of patient "walk-ins" and "referrals." It is the situation created by medical school publicity releases.

We would like to refer again for a moment to the public position of the medical institutions, particularly those institutions which are tax-supported. News releases on medical advances or on the development of new techniques or the results of research by the clinical faculty of an institution are expected by many people and, in fact, pressure is frequently exerted to publicize them for purposes of obtaining further funds from the legislature, foundations, medical societies, etc. Recognizing the necessity for news releases originating from medical institutions, and the reasons therefor;

> **The committee recommends that purely institutional releases be discouraged and that all press releases refer to members of the medical school faculty by name.**

This step, if undertaken by the schools will, in the committee's opinion, tend to diminish the mystic atmosphere of superior quality which surrounds the institution and give credit where it is properly due, to the individual or group of individuals responsible for the work involved.

This recommendation is not in itself a total solution to the misunderstandings which have been created throughout the years. Physicians in private practice are honor bound to uphold the Hippocratic Oath and the Principles of Medical Ethics. County medical societies have long held that it is a prerogative of organized medicine to determine conditions under which the Principles of Medical Ethics are being complied with or violated.

The committee recognized the independent status of the medical schools. In the spirit of cooperation, all of the five schools in the state have in the past year, again taken cognizance of their relationships to the medical community and have taken steps to improve their respective public relations programs. We salute the schools for this independent, important action.

A medical school as a unit should be ethical in its publicity releases and the principles of ethical conduct should apply to it as to individual physicians.

The committee suggests that before they are released, press releases originating in the medical schools, particularly those relating to the clinical faculty members, should be considered with the liaison committee of the respective county medical society and medical school whenever possible.*

Any member of a county medical society be he teacher, researcher, practitioner or public servant, should be guided by the same code of medical ethics in relation to publicity as is the physician in private practice. Those members of the faculty who are not members of the county medical society should be equally motivated. Any violation of this code by a medical school faculty member or a physician in private practice must be considered unethical.

County Medical Society—Medical School Liaison Committees

Since May 1956, the medical schools and the county medical societies have accomplished much in the way of effective liaison. Both the schools and the societies are to be complimented on the steps taken and on their cooperation. The committee wishes to emphasize the importance of this liaison and to encourage the continuation and further development of effective liaison committees.

IX

PART TIME FACULTY

The committee has thus far devoted its report to the absolute and geographic full time clinical faculty member, and his relations with physicians in private practice and organized medicine in general. There is another group of men without which the medical schools cannot function—the part time faculty. It is almost universally agreed that the work and teaching efforts of these physicians are essential to the effective operation of any teaching institution.

Commonly, however, the part time faculty has little if any voice in the activities of the medical school. Improvement of liaison between full time and part time faculty members would greatly strengthen a medical school.

The committee recommends therefore, that the part time faculty, because of its importance to the medical school and to medical education, through committee appointments and other means, be given a greater voice in determining the policies of the medical school.

X

The committee has given much consideration to the problems noted in the resolution, which brought it into being. It believes that it would be unrealistic and unwise to declare unethical the practice of medicine in governmental and tax-supported institutions by full time faculty members—to do so would lead to dichotomy between teacher and practitioner, tend further to the socialization of medicine, reduce the high level and quality of medical education in this country, fail to prepare the medical student and resident for private practice and greatly add to the cost of medical education which at present is the most costly for any of the professions.

The faculty of the University of Michigan Medical School expressed the situation well in stating, "They hold to the belief that the fate of the Medical School does not depend upon the complete full time-geographic full time, but on the will and spirit of its faculty."

* * *

In the course of its studies, the committee found that rates for room and ward facilities and auxiliary expenses in the teaching institutions are comparable to those charged by private hospitals.

SUMMARY

The committee recommends in respect to:

A. **Full time faculty members** (as defined in this report —definition, page 53).

1. *Absolute full time.* The committee favors, for each medical school, a small core or group of adequately compensated absolute full time faculty members in the clinical sciences. The primary interest of this group would be in research and teaching and not in practice.

The committee recommends that the salaries for the absolute full time group come from sources other than the practice of medicine, such as university endowment, grant funds, research or educational grants or alumni funds.

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*Reference Committee No. 1, to which this report was referred, suggested a rewording of this paragraph (see Item C. Publicity, page 57).

2. *Practicing full time.* The committee does not look favorably on the establishment of a practicing full time faculty group as defined in this report. The primary interest of such a group almost inevitably turns toward practice and not toward teaching, which rapidly becomes of secondary importance.

3. *Geographic full time.* The committee is of the opinion that a geographic full time faculty member is a better teacher of medical students retaining his relationship with physicians in private practice and with patients and recommends that the geographic full time clinical faculty members should reimburse their medical institutions for overhead expenses when facilities for private practice are supplied by the institutions.

4. *Reimbursement.* The committee recommends that any funds or professional fees received by a geographic full time faculty member beyond that limitation established by the administration of the medical school should accrue to the individual physician, and that the disposition of those funds or fees should be under personal control, not that of the medical school or hospital administrator, as long as the physician does not benefit personally and is not placed in a position of personal advantage in competition with private practitioners of medicine. The committee believes that these principles of limitation should apply to all branches of medicine including radiology and pathology.

B. Source of Patients

5. The committee endorses the principle that it is desirable that all patients coming to a geographic full time clinical faculty member be on a referred basis.

6. The committee recommends that the policies of the medical institution should tend more toward referred patients and less toward "walk-in" patients, and that this philosophy should be encouraged and fostered.

7. The committee recommends that all patients admitted to a medical school hospital be used as teaching patients. This recommendation should apply to referred, part-pay or any other class of patients who receive care in a tax-supported institution from or by an absolute full time or geographic full time faculty member.

8. The committee recommends that if the patient is of teaching value or is receiving clinic services and has insurance which provides for a professional fee, a fee should be collected.

C. Publicity

9. The committee suggests that before they are released, press releases originating in the medical schools, particularly those relating to the clinical faculty members, should be considered with the liaison committee of the respective county medical society and medical school whenever possible.

[Reference Committee No. 1, after hearings on the report, submitted the following as a rewording of the original report, and it was this version that was accepted by the House of Delegates.]

9. The committee suggests that there be established by county medical societies who have medical schools within their geographic jurisdiction, liaison committees whose function it will be to act as a consultative body to which medical schools may appeal for recommendations governing the release of medical information for lay consumption.

10. Any member of a county medical society, be he teacher, researcher, practitioner or public servant, should be guided by the same code of medical ethics in relation to publicity as is the physician in private practice. Those members of the faculty who are not members of the county medical society should be equally motivated. Any violation of this code by a medical school faculty member or a physician in private practice must be considered unethical.

D. Part Time Faculty

11. The committee recommends that the part time faculty, because of its importance to the medical school and to medical education, through committee appointments and other means, be given a greater voice in determining the policies of the medical school.

Respectfully submitted,

SPECIAL COMMITTEE ON THE PRIVATE PRACTICE OF MEDICINE BY MEDICAL SCHOOL FACULTY MEMBERS

HOWARD P. HOUSE, M.D.
WERNER F. HOYT, M.D.
WALTER E. MACPHERSON, M.D.
HERBERT C. MOFFITT, JR., M.D.
PAUL E. MCMASTER, M.D.
JOSEPH W. TELFORD, M.D.
DWIGHT L. WILBUR, M.D., *Chairman*

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3. Cutting, W. C.: From the medical school viewpoint, Stanford's Dean outlines teaching policies, Bull. San Francisco Med. Soc., 29:27, July 1956.

4. Saunders, J. B. DeC. M.: From the medical school viewpoint—U. C.'s Dean presents "Some Facts," Bull. San Francisco Med. Soc., 29:28-29, July 1956.

5. Davison, H. M.: President's page, J. Med. Assn. Georgia, pp. 372-374, Aug. 1956.

In Memoriam

Canouse, Richard E. Died in West Covina, May 6, 1957, age 33. Graduate of Temple University School of Medicine, Philadelphia, Pennsylvania, 1954. Licensed in California in 1955. Doctor Canouse was a member of the Los Angeles County Medical Association.

* * *

Feeley, Matilda. Died April 13, 1957, age 70. Graduate of Cooper Medical College, San Francisco, 1907. Licensed in California in 1908. Doctor Feeley was a retired member of the San Francisco Medical Society and the California Medical Association, and an associate member of the American Medical Association.

* * *

Glasgow, Samuel Condit. Died May 28, 1957, age 56. Graduate of the New York Medical College, Flower and Fifth Avenue Hospital, New York City, 1924. Licensed in California in 1940. Doctor Glasgow was a member of the Monterey County Medical Society.

* * *

Jackson, Gustavus B. Died in Santa Monica, May 8, 1957, age 80. Graduate of Rush Medical College, Chicago, 1902. Licensed in California in 1942. Doctor Jackson was a retired member of the Santa Barbara County Medical Society and the California Medical Association, and an associate member of the American Medical Association.

* * *

Joseph, Louis D. Died May 21, 1957, age 50. Graduate of the University of Illinois College of Medicine, Chicago, 1931. Licensed in California in 1942. Doctor Joseph was a member of the Los Angeles County Medical Association.

* * *

Kennell, Lloyd Armour. Died in San Diego May 8, 1957, age 68. Graduate of Hahnemann Medical College and Hospital, Philadelphia, Pennsylvania, 1917. Licensed in California in 1928. Doctor Kennell was a member of the San Diego County Medical Society.

* * *

King, Earl Beardsley. Died in San Francisco, May 14, 1957, age 50. Graduate of the University of California School of Medicine, Berkeley-San Francisco, 1931. Licensed in California in 1931. Doctor King was a member of the San Francisco Medical Society.

* * *

Martyn, George. Died April 29, 1957, age 89. Licentiate in Medicine, Surgery, Midwifery of the Apothecaries Society of London, 1892; Licentiate of the Royal College of Physicians of London, and member of the Royal College of Surgeons of England, 1893. Licensed in California in 1907. Doctor Martyn was a retired member of the Los Angeles County Medical Association and the California Medical Association, and an associate member of the American Medical Association.

* * *

Richards, Samuel Burgess. Died in San Bernardino, May 5, 1957, age 76, of heart disease. Graduate of the College of Physicians and Surgeons, Los Angeles, 1906. Licensed in California in 1906. Doctor Richards was a member of the San Bernardino County Medical Society.

* * *

Risser, Edward Daniel. Died in Pasadena, May 1, 1957, age 66. Graduate of the State University of Iowa College of Medicine, Iowa City, 1918. Licensed in California in 1941. Doctor Risser was a member of the Los Angeles County Medical Association.

* * *

Rolph, William D., Sr. Died May 25, 1957, age 67. Graduate of Cornell University Medical College, New York, N. Y., 1914. Licensed in California in 1915. Doctor Rolph was a member of the San Diego County Medical Society.

* * *

Scarboro, Edwin Rutherford. Died in Fresno, May 8, 1957, age 67. Graduate of the University of Michigan Medical School, Ann Arbor, 1917. Licensed in California in 1919. Doctor Scarboro was a retired member of the Fresno County Medical Society and the California Medical Association, and an associate member of the American Medical Association.

* * *

Skoller, Julius. Died May 27, 1957, age 42. Graduate of the Stritch School of Medicine of Loyola University, Chicago, Illinois, 1940. Licensed in California in 1941. Doctor Skoller was a member of the Los Angeles County Medical Association.

* * *

Trimble, Harold Guyon. Died in Oakland, May 13, 1957, age 61; homicide; death was caused by multiple gunshot wounds, shock and hemorrhage. Graduate of the University of California School of Medicine, Berkeley-San Francisco, 1920. Licensed in California in 1920. Doctor Trimble was a member of the Alameda-Contra Costa Medical Association.

* * *

Werlich, Richard Eugene. Died in San Diego, May 21, 1957, age 67, of cerebral hemorrhage. Graduate of Rush Medical College, Chicago, Illinois, 1915. Licensed in California in 1931. Doctor Werlich was a member of the San Diego County Medical Society.

WOMAN'S AUXILIARY
TO THE CALIFORNIA MEDICAL ASSOCIATION

The Value of the Woman's Auxiliary To the Medical Profession

YEARS OF ACTIVE PARTICIPATION in the Woman's Auxiliary have convinced me of its value to its parent organization. I should like to discuss briefly a few of the various projects carried on by the Auxiliary; namely: Nurse Recruitment, Public Relations, Legislation and our support of the American Medical Education Foundation.

We should like all doctors to be aware of the time and effort spent in the field of nurse recruitment. This has grown to be our number one project. All counties have participated in some manner. Our state chairman in conjunction with a consultant from "Careers in Nursing" California League for Nursing, has traveled hundreds of miles, guiding county chairmen who in turn organize a program which is presented in the junior and senior high schools to interest students in becoming nurses by joining a Future Nurses Club. Since the recruitment program is so well organized, we have branched out into affiliated fields providing scholarships and loans to student nurses. Future Nurses Clubs have become one of the leading youth movements in the United States and the Auxiliary to the California Medical Association has sponsored 149 of them.

Public Relations is another important project, and this is a broad field. It really covers everything we do. It isn't accomplished in a day or even a year. It's the helpful things we do in everyday living and community service. It includes the many volunteer services we render our community, our contributions to Physicians' Benevolence, our help in the sale of *Today's Health,* and most recently GEMS (Good Emergency Mother Substitutes), a program for training baby sitters.

It has been evidenced that doctors' wives are an important adjunct to the community health agencies. They are to be found on many boards of directors of our local and national health agencies and supporting Auxiliary philanthropic programs. Through our community service we can be of inestimable value to the public relations program.

Closely related to Public Relations is the work of the Legislative chairman. Many hundreds of doctors' wives have worked actively with the C.M.A. to support its legislative programs. Auxiliary members are kept "informed" on current bills in Congress by the Legislative chairman, who disseminates pending legislative data through study clubs, bulletins and speakers at regular meetings. Recently, the A.M.A. has asked each state medical society to recommend a key legislative representative. It has been suggested that the Auxiliary follow the same pattern, namely: The appointment of a member interested in following legislation in each state to work with the State Medical Association appointee.

As doctors' wives it is important to understand the theory underlying the organization of the American Medical Association, and that we do our share to support it. In the year 1956-57, the Auxiliary contributed the sum of $5,942.04 to the A.M.E.F. The money has been raised in many ways. Some auxiliaries include one dollar for A.M.E.F. in annual dues; others have special benefits or give part of the proceeds of one large benefit.

I have only touched on a few of our projects. No mention has been made of our Civil Defense program, of the work we do in our communities to promote better health and of the thousand and one things our Auxiliary members do to make this a better world to live in.

MRS. LEONARD D. OFFIELD, *President*

INFORMATION

Tax Consequences of Absence from Practice: Status of Substitute Physicians

HOWARD HASSARD, Attorney-at-Law
Counsel, California Medical Association

CONVENTIONS, vacations, illness or any other absence from practice may result in numerous unanticipated tax consequences for physicians. Frequently, on such occasions, physicians engage a substitute for the treatment of their patients, paying the substitute a flat weekly or monthly rate. Seldom is any thought given to the possible creation of an employer-employee relationship and the tax results which flow therefrom.

As a general rule, the creation of the employer-employee relationship carries the burden to the employer of withholding income taxes, withholding and contributing under the federal Social Security Act, and withholding and contributing under the federal and state unemployment acts. These burdens are avoided where the substitute physician has the status of an independent contractor. Therefore, the distinction between the employer-employee and independent contractor relationship becomes of immediate interest to every practitioner.

The term "employee" includes every person performing services if the relationship between him and the person for whom he performs such services is the legal relationship of employer and employee. Generally, the relationship of employer and employee exists when the person for whom services are performed has the right to *control and direct* the person who performs the services, not only as to the result to be accomplished by the work, but also *as to the details and means by which that result is accomplished.* That is, an employee is subject to the will and control of the employer not only as to what shall be done but how it shall be done. In this connection it is not necessary that the employer actually direct or control the manner in which the services are performed; it is sufficient if he has the right to do so. The right to discharge is also an important factor indicating that the person possessing that right is an employer. Other factors considered in determining whether an employer-employee relationship exists, but not necessarily present in every case, are:

1. Whether the one performing services is engaged in a distinct occupation or business;
2. The kind of occupation, with reference to whether it is usually done by a specialist without supervision or under the direction of an employer;
3. The skill required in the particular occupation;
4. Whether the employer or the workman supplied the tools, instrumentalities, and place of work;
5. The length of time for which services are to be performed; the method of payment, whether by time or by the job;
6. Whether or not the work is part of the regular business of the principal;
7. Whether or not the parties believe they are creating the relationship of employer-employee.

An independent contractor has been defined by the California Supreme Court as "one who renders service in the course of an independent employment or occupation following his employer's desires only in the results of the work, and not the means whereby it is to be accomplished."

Definitions and criteria such as those just cited can be misleading. The practice of medicine is such that the principal will seldom, if ever, have *the right to control and direct the substitute as to the details and means by which any given result is to be accomplished.* Logically then, a physician can never be an employee. However, we know this is not true. Therefore, careful attention must be given to all of the criteria enumerated above if the physicians are to successfully avoid creating an employer-employee relationship.

A recent federal court case involved physicians employed by "O" Company who were required to report each morning at a fixed hour. They remained on duty as long as their services were needed. They treated all the employees and were required to give examinations to all persons applying for work. Their reports were made out on company forms. However, their work for "O" Company was part-time, with the greater portion of their time spent in private offices. They were free to leave the company premises if an emergency in their private practice required it during their company hours. The court held that the contracts indicated that the rights and obligations of an employer-employee relationship were not being assumed. Direct control and supervision by the company over the details and means by which the work was to be accomplished was not contemplated.

The Bureau of Internal Revenue has taken the position, in these cases, that a physician engaged in the private practice of medicine who in connection therewith examines and treats company employees as a part-time service for the company, is not an employee of the company.

These examples are loosely analogous to the problem discussed in this article. It must be noted that the work of the physicians in the examples given was not part of the regular business of the principal and thus did not point to an employer-employee relationship in those instances as it would in the case of a physician performing services in a locum tenens situation.

Careful attention to the criteria enumerated when engaging a substitute physician is essential. The substitute physician should be allowed complete freedom of choice in the details and methods employed in the treatment of the patients. All decisions concerning the method and manner of treating the patient should be within his sole discretion. Consideration should be given to the possibility of paying fees based on the actual work performed, tying his compensation in with the number of patients examined and treated and the nature of the services rendered, and the physicians should establish a clear understanding that there is no intention of creating the employer-employee relationship. Following these rules will permit an intelligent appraisal of the tax consequences when circumstances require one physician to entrust his practice to another.

Sterilization of Mentally Deficient

Editor's Note: For the light it sheds on a problem that may confront physicians from time to time, we publish with permission the following letter written in reply to a question put to the California Department of Mental Hygiene by legal counsel for the California Medical Association.

Re: Sterilization for Mental Deficiency

Dear Mr. Hassard:

In response to your letter of the 7th of February concerning the policies of this Department in relation to the sterilization of mentally defective individuals, I wish to say that we have reviewed your communication carefully and would wish to make the following comments. As you know the law provides for the admission of mentally deficient individuals to our state hospitals for care and treatment and if it is found by the staff of the hospital that sterilization is indicated, and if the family and the patient agree to the operation, then sterilization can be performed. Specifically, we do not believe that a policy of admission for sterilization only can be established under the present law.

During the last fiscal year six such sterilizations were performed on patients under treatment in our three hospitals for the retarded, which indicates that to a small degree sterilization is still being carried out in those cases where the staff, the patient and the family agree that it is indicated. I would suggest that the practicing physicians, who believe that sterilization is necessary in one of their patients whom they also believe to be mentally retarded, enter into personal discussion or correspondence with the superintendent of the state hospital for the retarded that accepts patients from the county of residence concerned. In this manner the physician can present his problem to fellow physicians on the hospital staff and I would think that usually a mutually agreeable solution could be arrived at. As you know, current medical and psychiatric thinking has changed considerably so that sterilization is more carefully scrutinized before being performed, either for mental retardation or mental illness.

Should you desire further information concerning this matter we will expect to hear from you.

Very truly yours,

Walter Rapaport, M.D.
Director of Mental Hygiene
M. E. Porter, M.D.
Deputy Director, Medical Services

NEWS & NOTES

NATIONAL · STATE · COUNTY

LOS ANGELES

Dr. A. A. Kutzmann of Los Angeles was elected president-elect of the American Urological Association at the annual meeting of the association held in Pittsburgh in May.

* * *

Dr. Edgar F. Mauer of Los Angeles was installed as president of the **California Heart Association** at the recent annual meeting in San Diego, succeeding Dr. George K. Wever of Stockton. Dr. Clifford B. Cherry, also of Los Angeles, was elected president-elect. Dr. Ray B. Wiser, San Jose, was named chairman of the board of directors and Dr. A. L. Edgar, San Diego, was elected secretary. Vice-presidents are Dr. Maurice Eliaser, San Francisco, and Drs. Thomas Craig and Alex A. Roger, both of Los Angeles.

* * *

At the annual meeting of the **Radiological Society of Southern California,** the following officers were elected for the year 1957-58: Chairman, Dr. Donald Laing, Pasadena; vice-chairman, Dr. George Jacobson, Los Angeles; secretary-treasurer, Dr. Harold Tomkins, Los Angeles. Other members of the board of directors are: Dr. James Irwin, San Diego, and Dr. Robert B. Engle, Pasadena.

* * *

The College of Medical Evangelists School of Medicine appointed three **new faculty members** effective July 1. They are Dr. LaFilse Chaney, Jr., instructor in pediatrics; Dr. Lloyd T. Iseri, associate clinical professor of medicine; and Dr. Donald J. Lauber, instructor in anesthesiology.

SAN FRANCISCO

James T. Post, a senior student at the University of California School of Medicine, San Francisco, recently was named **winner of an international essay contest** sponsored by the American College of Chest Physicians. He received a prize of five hundred dollars at the annual meeting of the organization in New York.

The winning essay was a report of a study of the effect of the inhalation of various drugs on the incidence of tumors of the lung in a susceptible strain of mice.

GENERAL

At the annual meeting of the **California Society of Plastic Surgeons,** held in Santa Barbara, the following officers were elected: President, Dr. Michael Gurdin, Beverly Hills; vice-president, Dr. Gerald Gray, Oakland; secretary-treasurer, Dr. Benjamin F. Edwards, Santa Monica; historian, Dr. Kathryn Stephenson, Santa Barbara.

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The World Congress of Gastroenterology and the 59th Annual Meeting of the American Gastroenterological Association will be held in Washington, D. C., at the Sheraton Park Hotel, May 25 to 31 inclusive, 1958. The scientific meetings of the Congress will occupy Sunday, Monday, Tuesday, Wednesday and Thursday and the 59th Annual Scientific Session of the American Gastroenterological Association will take place Friday and Saturday. The objective of this congress is to bring together **scientists from all parts of the globe** who are actively contributing new knowledge and experience in the fundamental sciences or in the clinical behavior patterns related to disorders of the alimentary tract. Two half-day sessions will be devoted to brief presentations of original scientific work carefully selected from centers throughout the world.

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The American Urological Association is offering its usual annual award of $1,000 (first prize of $500, second prize $300 and third prize $200) for essays on the result of some clinical or laboratory research in urology. Competition is limited to urologists who have been graduated not more than ten years, and to hospital interns and residents doing research work in urology.

Full particulars may be obtained from the executive director, William P. Didusch, 1120 North Charles Street, Baltimore, Maryland. Essays must be in his hands before December 1, 1957.

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Dr. Jerome W. Schilling, medical director, Pacific Telephone and Telegraph Company, Los Angeles, was elected president of the Industrial Medical Association at its annual meeting in St. Louis, and **Dr. L. E. Curtis,** medical director of Standard Oil Company of California, San Francisco, was elected a director of the organization.

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The Trustees of America's oldest medical essay competition, the **Caleb Fiske Prize** of the Rhode Island Medical Society, have announced as the subject for this year's dissertation "Hormonal Relationships in Breast and Prostatic Cancer—Their Practical Application." A cash prize of $350 is offered. Essays must be submitted by December 31, 1957.

Complete information regarding the regulations may be obtained by writing to the Secretary, Caleb Fiske Fund, Rhode Island Medical Society, 106 Francis Street, Providence 3, Rhode Island.

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An international **conference on ultrasonics in medicine,** sponsored by the American Institute of Ultrasonics in Medicine, will be held at the Statler Hotel, Los Angeles, September 6 and 7, 1957. The meeting will cover the biological and physiological principles, as well as the clinical aspects of ultrasonics in medicine.

* * *

The American Psychiatric Association has set up a project to study ways by which a **greater understanding of psychiatry** can be conveyed to physicians in general practice, the association announced recently. The project has been made possible, the announcement said, by a grant from the National Committee Against Mental Illness. A liaison committee with the American Academy of General Practice, which will serve the project in an advisory capacity, has proposed, the announcement continued, that the general urgent need for expanding psychiatric services in communities throughout the nation can most readily and practicably be met by general practitioners if they can be armed with appropriate basic knowledge of psychiatric skills and practices.

POSTGRADUATE EDUCATION NOTICES

THIS BULLETIN of the dates of postgraduate education programs and the meetings of various medical organizations in California is supplied by the Committee on Postgraduate Activities of the California Medical Association. In order that they may be listed here, please send communications relating to your future medical or surgical programs to: Mrs. Margaret H. Griffith, Director, Postgraduate Activities, California Medical Association, 417 South Hill Street, Los Angeles 13.

UNIVERSITY OF CALIFORNIA AT LOS ANGELES

Current Concepts in Medicine. Thursday, Friday and Saturday, August 1 to 3. Fifteen hours.†

Postgraduate Medical Seminar Cruise to the Hawaiian Islands leaving August 28, returning September 9. Inclusive fare: $559.00 up.

Treatment of Emotional Problems in Office Practice. Thursdays, September 19 through December 12. Twenty-four hours. Fee: $50.00.

Surgical Anatomy. Mondays, September 23 through November 25.*

Selected Topics in Pathological Physiology of the Cardiovascular System. Mondays, October 7 through December 9. Twenty hours. Fee: $60.00.

Endocrinology and Metabolism. Friday and Saturday, October 11 and 12. Ten hours.†

Dermatology. Thursday, Friday and Saturday, October 24 to 26. Sixteen hours.†

Aviation Medicine. Thursday, Friday and Saturday, October 31, November 1 and 2. Twenty hours.†

Contact: Thomas H. Sternberg, M.D., Assistant Dean for Postgraduate Medical Education, U.C.L.A., Los Angeles 24. BRadshaw 2-8911, Ext. 202.

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

Fundamental Principles of Radioactivity and the Diagnostic and Therapeutic Uses of Radioisotopes. Two or three month course limited to one enrollee per month. Tuition: $250.00 per month.

Refresher Course in Anatomy. July 29 to August 2 on Berkeley campus. Fee: $75.00.

Internal Medicine. Monday through Saturday, September 16 to 21. Forty-two hours.†

Medicine for General Practitioners. East Oakland Hospital, Tuesday evenings, September 17 to December 10. Twenty-four hours. Fee: $50.00.

Endocrinology. Evening Series in Sacramento, Wednesday evenings, September 25, October 23 and November 20. Fee: $15.00.

Annual Ophthalmological Conference. Wednesday-Friday, December 4 to 6.*

Dermatology. Friday and Saturday, January 17 and 18, 1958.*

Course for Physicians in General Practice. Monday through Friday, March 3 to 7, 1958, Mount Zion Hospital.*

Contact: Seymour M. Farber, M.D., Head, Postgraduate Instruction, Office of Medical Extension, University of California Medical Center, San Francisco 22. MOntrose 4-3600, Ext. 665.

STANFORD UNIVERSITY SCHOOL OF MEDICINE

Morning Clinical Conferences, each Monday, Room 515. *Contact:* D. H. Pischel, M.D., Professor, Division of Ophthalmology, Stanford University School of Medicine, 2398 Sacramento St., San Francisco 15.

Postgraduate Conference in Office Dermatology. September 19 to 21. *Contact:* Office of the Dean, Stanford University Medical School, 2398 Sacramento St., San Francisco 15.

UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES

Cardiac Resuscitation. Sponsored by the Los Angeles County Heart Association each Wednesday throughout the year, 4 to 6 p.m. Residents admitted without fee. Tuition for all other physicians: $30.00. (Each session all-inclusive.)

Home Course in Electrocardiography. Physicians may register at any time and receive all 52 issues. Fifty-two weeks. Fee: $100.00.

Advance Home Course in Electrocardiography. One year postgraduate series, electrocardiogram interpretation by mail. Fifty-two issues: $85.00. Physicians may register at any time.

Dermatology. Twelve months full time basic science course beginning September 16. Enrollment limited to 12 qualified physicians. Los Angeles County Hospital. Fee: $1,000.00.

Intensive Review of Internal Medicine. Monday through Friday, 8:30 a.m. to 12:30 p.m., September 23 through October 4. Program scheduled near time Part I of the American Board of Internal Medicine examination in order to accommodate those physicians who desire an intensive review prior to this examination. USC Research Building, 2025 Zonal Ave., Los Angeles. Fee: $65.00.

Symposium on Sexual Problems. September 27, 9 a.m. to 5 p.m., Statler Hotel, Los Angeles. Fee: $25.00.

Pediatric Clinics for the General Practitioner. October 8, 1957, through March 18, 1958, 8:30 to 9:30 a.m. Childrens Hospital. Fee. $40.00.

Bedside Clinics and Set Clinics in Internal Medicine. Thursdays, October 10, 1957, through January 16, 1958, 7:30 to 9:30 p.m. Los Angeles County Hospital. Fee: $65.00.

Contact: Phil R. Manning, M.D., Director, Postgraduate Division, University of Southern California School of Medicine, 2025 Zonal Avenue, Los Angeles 33. CApital 5-1511.

COLLEGE OF MEDICAL EVANGELISTS

Vue-Vox Postgraduate Refresher Courses. Courses are made up of four or more half-hour lectures each, recorded on hi-fi magnetic tape and illustrated by 35-mm. filmstrips or slides in full color, and adapted for use on any standard tape recorder and filmstrip or slide projector, automatic or manual.

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†Fee to be announced.

*Hours and Fees to be announced.

Contact: Paul D. Foster, M.D., chairman, Committee on Audio-Visual Courses, College of Medical Evangelists School of Medicine, 316 North Bailey St., Los Angeles 33.

CALIFORNIA MEDICAL ASSOCIATION POSTGRADUATE COURSES

POSTGRADUATE CIRCUIT COURSES

Sacramento Valley Circuit for Dunsmuir, Chico, Marysville and Auburn, in cooperation with University of California, San Francisco, begins week of October 7, 1957.

North Coast Circuit for Eureka, Ukiah and Napa, in cooperation with Stanford University School of Medicine begins week of October 7, 1957.

POSTGRADUATE INSTITUTES—1958

San Bernardino, Riverside and Orange Counties, in cooperation with College of Medical Evangelists, Arrowhead Springs Hotel, San Bernardino County, February 13 and 14, 1958. Chairman: Elmer O. Carlson, M.D., 756 N. Euclid Ave., Ontario.

West Coast Counties, in cooperation with UCLA School of Medicine, Golden Bough Theater and La Playa Hotel, Carmel, March 6 and 7, 1958. Chairman: Howard C. Miles, M.D., 535 E. Romie Lane, Salinas.

San Joaquin Valley Counties, in cooperation with Stanford University School of Medicine, Hotel Californian, Fresno, March 20 and 21, 1958. Chairman: Henry L. Tiesche, M.D., 1759 Fulton St., Fresno.

North Coast Counties, in cooperation with USC School of Medicine, Hoberg's Resort, Lake County, April 10 and 11, 1958. Chairman: Alfred A. Thurlow, Jr., M.D., 185 Sotoyome Ave., Santa Rosa.

Contact: One of the chairmen listed above, or Mrs. Margaret H. Griffith, Director, Postgraduate Activities, California Medical Association, 417 So. Hill Street, Los Angeles 13. Madison 6-0683.

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Audio Digest Foundation, a nonprofit subsidiary of the C.M.A., now offers (on a subscription basis) a series of hour-long tape recordings designed to keep the physician abreast of current happenings in his particular field. Composed of practice-useful abstracts from 600 leading journals, with short lectures and editorial comments from prominent physicians, Audio Digest offers programs covering general practice, surgery, internal medicine, obstetrics and gynecology, and pediatrics.

Contact: Claron L. Oakley, editor, 1919 Wilshire Blvd., Los Angeles 57.

Medical Dates Bulletin

AUGUST MEETINGS

State Board of Medical Examiners Oral Examination, Los Angeles, August 17.*

State Board of Medical Examiners Oral and Clinical Examination for Foreign Graduates, Los Angeles, August 18.‡

State Board of Medical Examiners Written Examination, Los Angeles, August 19 to 22.

Reno Surgical Society Annual Meeting, August 21 to 24, Riverside Hotel, Reno, Nevada.

SEPTEMBER MEETINGS

Utah State Medical Association Annual Scientific Session, September 5 to 7, Hotel Utah, Salt Lake City, Utah. *Contact:* Harold Bowman, 42 South Fifth Street, Salt Lake City.

American Congress of Physical Medicine and Rehabilitation, Los Angeles, September 8 to 13. *Contact:* Frances Baker, M.D., secretary, One Tilton St., San Mateo.

Saint John's Hospital Annual Postgraduate Assembly, September 12 to 14, Saint John's Hospital, Santa Monica. *Contact:* John C. Eagan, M.D., director, Postgraduate Assembly, 22nd Street at Santa Monica Blvd., Santa Monica.

Washington State Medical Association Annual Meeting, Olympic Hotel, Seattle, Washington, September 15 to 18. *Contact:* Mr. Ralph W. Neill, executive secretary, 1309 Seventh Ave., Seattle, Washington.

San Diego County General Hospital 11th Annual Postgraduate Assembly, September 18 to 19. Reception for all registrants, 5:00 to 7:00 p.m., September 18. *Contact:* Haddon A. Peck, Jr., M.D., 525 Hawthorne St., San Diego.

Nevada State Medical Association Annual Meeting, Las Vegas, September 25 to 28. *Contact:* Nelson B. Neff, executive secretary, P. O. Box 188, Reno.

American Fracture Association Eighteenth Annual Meeting, El Paso, Texas, September 30 to October 3. *Contact:* H. W. Wellmerling, M.D., 606 Grieshum Bldg., Bloomington, Illinois.

OCTOBER MEETINGS

San Francisco Heart Association 28th Annual Postgraduate Symposium on Heart Disease, October 2 to 4, St. Francis Hotel, San Francisco. *Contact:* Lawrence I. Kramer, Jr., executive director, 604 Mission St., San Francisco.

American Cancer Society, California Division Annual Cancer Conference, October 3, 2 to 5 and 8 to 10 p.m., Fairmont Hotel, San Francisco. *Contact:* Gerson Biskind, M.D., chairman, Program Committee, 450 Sutter St., San Francisco 8.

Western Industrial Medical Association Sixteenth Annual Meeting combined with First Western Industrial Health Conference, Biltmore Hotel, Los Angeles. October 4 to 6. *Contact:* E. J. Zaik, M.D., secretary, Western Industrial Medical Association, 740 South Olive Street, Los Angeles 14.

San Diego County Heart Association Seventh Annual Professional Symposium on Heart Disease. U. S. Naval Hospital, San Diego, October 8. *Contact:* O. Martin Avison, executive director, San Diego County Heart Association, 1651 Fourth Ave., San Diego.

Los Angeles County Heart Association 27th Annual Symposium on Heart Disease, Wilshire-Ebell Theatre, 4401 W. Eighth St., Los Angeles, October 9 and 10. *Contact:* Walter S. Thompson, Jr., M.D., chairman, 660 S. Western Ave., Los Angeles.

WESTERN ORTHOPEDIC ASSOCIATION Annual Meeting, October 20 to 24, Santa Barbara. *Contact:* Walter Scott, M.D., secretary, 1321 N. Vermont Ave., Los Angeles 27.

STATE BOARD OF MEDICAL EXAMINERS Written Examination, October 21 to 24, Sacramento.‡

CALIFORNIA SOCIETY OF INTERNAL MEDICINE Annual Meeting, October 25 to 27, El Mirador, Palm Springs. *Contact:* Mrs. Mildred B. Coleman, assistant secretary, 350 Post St., San Francisco 8.

CALIFORNIA SOCIETY-INTERNAL MEDICINE Scientific Session, **The Thyroid.** El Mirador, Palm Springs, 2 to 5 p.m., October 26. *Contact:* William L. Cover, M.D., 575 Fifth St., San Bernardino.

NOVEMBER MEETINGS

CALIFORNIA ACADEMY OF GENERAL PRACTICE Ninth Annual Scientific Assembly, November 3 to 6, Hotel Statler, Los Angeles. *Contact:* William W. Rogers, executive secretary, 461 Market Street, San Francisco.

PAN-PACIFIC SURGICAL ASSOCIATION Seventh Congress, November 14 to 22, Honolulu, Hawaii. *Contact:* F. J. Pinkerton, M.D., Director General of Pan-Pacific Surgical Association, Room 230, Young Bldg., Honolulu, Hawaii.

DECEMBER MEETINGS

AMERICAN COLLEGE OF CHEST PHYSICIANS Postgraduate Course on Diseases of the Chest, Ambassador Hotel, Los Angeles, December 9 to 13. *Contact:* Alfred Goldman, M.D., chairman, 416 N. Bedford Drive., Beverly Hills.

1958 MEETINGS

AMERICAN COLLEGE OF OBSTETRICIANS AND GYNECOLOGISTS, April 21 to 23, Los Angeles. *Contact:* John C. Ullery, M.D., secretary, 15 South Clark St., Chicago 3.

CALIFORNIA MEDICAL ASSOCIATION Annual Meeting, Ambassador Hotel, Los Angeles, April 27 to 30. *Contact:* John Hunton, executive secretary, 450 Sutter St., San Francisco 8, or Ed Clancy, director, Public Relations, 417 South Hill St., Los Angeles 13.

AMERICAN BRONCHO-ESOPHAGOLOGICAL ASSOCIATION, May 21 to 23, San Francisco. *Contact:* F. Johnson Putney, M.D., secretary, 1719 Rittenhouse Square, Philadelphia, Pa.

CALIFORNIA HEART ASSOCIATION Annual Meeting, Scientific Session and Directors Meeting, Hacienda Motel, Fresno, May 23 to 25. *Contact:* J. Keith Thwaites, executive director, 1428 Bush St., San Francisco.

AMERICAN COLLEGE OF CHEST PHYSICIANS 24th Annual Meeting, June 18 to 22, San Francisco. *Contact:* Mr. Murray Kornfeld, executive director, 112 East Chestnut St., Chicago 11, Ill.

AMERICAN MEDICAL ASSOCIATION Annual Meeting, June 23 to 27, San Francisco. *Contact:* American Medical Association, 535 North Dearborn St., Chicago 10.

AMERICAN PROCTOLOGIC SOCIETY, June 29 to July 3, Los Angeles. *Contact:* Norman D. Nigro, M.D., secretary, 10 Peterboro St., Detroit 1, Michigan.

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‡Contact: Louis E. Jones, M.D., 1020 N Street, Sacramento 14.

*NOTE: In regard to the dates of oral examinations, applicants are requested *NOT* to arrange to come to an oral examination until they receive a notice of the action of the Credentials Committee advising them of the time and place to appear.

THE PHYSICIAN'S *Bookshelf*

PEDIATRIC CARDIOLOGY—Alexander S. Nadas, M.D., F.A.A.P., Assistant Clinical Professor of Pediatrics, Harvard Medical School. W. B. Saunders Company, Philadelphia, 1957. 587 pages, 343 figures, $12.00.

This well written monograph thoroughly covers the common cardiovascular problems of childhood with special emphasis upon congenital heart disease—a field in which the author is an authority. It utilizes an experienced, sound clinical approach to the subject. The ancillary laboratory technics of electrocardiography, roentgenology, phonocardiography, angiocardiography and cardiac catheterization are described in clear detail and the indications for their employment are thoughtfully discussed. It is evident that the author is speaking from his wide experience in the field and through familiarity with the tools of his profession. The short section on "who should perform cardiac catheterization and why?" humorously discusses a problem of growing importance. The flaws in the book are relatively minor. There is, for example, no discussion of the innocent systolic murmur or other findings in normal children which may frequently lead to the false diagnosis of cardiac disease and unnecessary anxiety for both physician and parents. The use of the terms "digitoxicity" and "anti-congestive" measures may save unnecessary words but will surely disturb scholarly cardiologists. It is doubtful if intrinsicoid deflection times can be accurately measured in electrocardiograms of infants and children using direct writing instruments at conventional paper speeds as indicated in the section on electrocardiography. Some of the illustrations do not appear to have been carefully chosen. On two occasions the same phonocardiogram is employed to illustrate different phenomena. Figure 76, illustrating supraventricular tachycardia and "absence of well defined P waves" is obviously a nodal tachycardia with clearly visible retrograde P waves. The phonocardiogram of complete heart block in Figure 104 employed to illustrate the independence of atrial and ventricular activity and variations in intensity of the first heart sound consists of less than two ventricular cycles and does not illustrate the phenomenon. Many cardiologists would consider the author's employment of bed rest in rheumatic fever to be unduly rigid as indicated by the following statements: "The minimum amount of time to be spent in bed for any patient with rheumatic fever is probably two months. No patient with carditis should get out of bed for at least four months, should return to school for six months or should resume full activity for a year." There are numerous illustrations, most of which are technically excellent and a complete, wisely chosen, up-to-date bibliography of 371 references is available. This volume will be a standard classic in its field for many years to come and should be widely used by pediatricians, cardiologists and workers in the field of congenital heart disease.

H. N. Hultgren, M.D.

PAPER ELECTROPHORESIS—**Ciba Foundation Symposium**—G. E. W. Wolstenholme, O.B.E., M.A., M.B., B.Ch., and Elaine C. P. Millar, A.H.-W.C., A.R.I.C., Editors. Little, Brown and Company, Boston, 1956. 224 pages, 74 illustrations, $6.75.

There are few physicians who have not heard something about paper electrophoresis. There are fewer still who have not wondered to what degree this recent addition to medical instrumentation concerns them in daily practice. An authoritative, brief, readable treatment of this subject by recognized experts in the field is given in the most recent Ciba Foundation Symposium entitled "Paper Electrophoresis."

This volume of 200 pages contains recent data on methods and the practical uses of paper electrophoresis in medicine. Although the book is by experts talking to each other, it has much to offer to the nontechnically-minded physician. Discussions of voltage and the properties of paper are easily followed. This book makes it clear that paper electrophoresis has now reached the stage where commercial instruments are sufficiently accurate to be used for many routine clinical purposes. For example, multiple myeloma is not the only disease in which one drop of serum put on a paper strip will yield valuable corroborative diagnostic information. Hypogammaglobulinemia, cirrhosis, hepatitis, nephrosis, routine A/G ratios, and even a new disease entity, idiopathic hypoalbuminemia, are conditions with characteristic serum electrophoretic patterns. Paper electrophoresis is also used for prompt diagnosis of sicklemia, hemoglobin-C disease, and other more obscure disorders of the blood pigments.

A great advantage of paper electrophoretic methods is the small amount of material needed for a determination. Small serum or hemoglobin samples such as are obtained from pediatric patients, can be processed in two days to give definitive diagnostic information. Another advantage of this method is the number of determinations which can be done by one technician. An institution which processes twenty or thirty paper electrophoretic samples a day can fit the cost of a trained technician and the equipment for this purpose into the structure of a routine laboratory fee schedule.

For the thoughtful reader, there are interesting chapters on the use of paper electrophoretic methods in studying collagen disease, for separating amino acids and serum polysaccharides, for identifying lipoproteins important in hypercholesterolemic states, and on the use of curtain electrophoresis for separating serum proteins.

This book is a valuable reference book for the physician who directs or utilizes the services of laboratories which have paper electrophoretic equipment. For the research worker, there is inspiration as well as a selected bibliography. Even the busy physician will become a better doctor by spending an evening with this clear presentation of the values and the limitations of paper electrophoresis.

Cutting B. Favour, M.D.

THE PRINCIPLES AND ART OF PLASTIC SURGERY

—Sir Harold Gillies, C.B.E., F.R.C.S., and D. Ralph Millard, Jr., M.D., Assistant Clinical Professor of Plastic Surgery, University of Miami, Florida. Little, Brown and Company, 34 Beacon Street, Boston, 1957. In Two Volumes, Boxed. 690 pages, 2472 illustrations, 122 in color, $35.00.

This dramatic, fascinating work by the old master of plastic surgery in company with his later companion and student, who was chief plastic surgeon to the Marines in Korea, is certainly a complete departure from the usual. The word "dramatic" is used in its true sense, for the first volume starts with the title "The Plastic Play." As we advance into the volume, we accept the "First Act," entitled "Cinderella Surgery" which, according to the authors, has been "reenacted as it actually happened, using the original cast as actors." Only then do we realize that this is an entirely original way of presenting a combination of autobiography, an unorthodox text, an informal reference book, filled with the most astounding array of illustrations (both in black and white and in color) that has ever been published, as well as a complete drama in the development of plastic surgery from 1915 to the present time.

Having been an early student of Harold Delf Gillies at the time when Cinderella first met the "fairy prince" and was just emerging from the "hired cutaway coat" to the loss of the "glass slipper which would fit no other foot," I entered the picture when the entire world was seeking the foot which would fit the slipper! They found it at Queen Anne Street and the "fairy prince" smiled. Instead of the "hired cutaway" Morrison of Savile Row made clothes for Cinderella!

I am, indeed, proud to be asked to review this remarkable, unprecedented life work of a master surgeon, who has the chatty wit, as well as the fundamental, salty expressive teachings of our own Will Rogers. It was my privilege to know many of the cast of characters in "The Plastic Play" —to "sit in" at the rehearsals—to watch the "plot" develop from Dollis Hill, to Queen's, at Sidcup to Roehampton to Guy's and "Barts," to Prince of Wales and points between. To follow through the years the solution of problem cases that only one gifted with the imagination, integrity and true ability of an artist could otherwise decipher.

In order to fully appreciate the unusual way of presentation of this work, one should start at the beginning. Without the "foreword" by Doctor Jerome Pierce Webster (to those who have not intimately known these two authors of kindred spirits who wilfully lead you into such coy titles as "Flap Happy," "Ear Making" and others equally remote from the generalized patterns of "regulations"), you might feel that it was a comedy instead of a drama and put it aside or return it to the publishers. But, ah! your inquisitive soul is intrigued by the unique frankness of the story and you *must* read on which, of course, is exactly what the authors wanted you to do! So it happens that, when you have read from prologue to epilogue, you will want to return again and again—to gather up the pearls of wisdom and experience which have a vague place in your memory in the excitement of the first reading—and store them away as treasures to guide you to success. These "pearls" are scattered throughout the two volumes and, as you read, suddenly you are confronted with a trite saying which embodies a principle in the art of plastic surgery and which, if followed faithfully, means the difference between a good and a bad result. A few examples may be cited: "There is no better training for a surgeon than to be taught observation by a physician"; "diagnose before you treat"; "make a plan and a pattern for this plan" (the architect would never build without a blueprint—and his bricks are cheaper than ours!); "borrow from Peter to pay Paul when Peter can afford it"; "when Mahomet is a long way from the mountain, try to move the mountain to Mahomet"; "failure of complete immobilization of a skin graft . . . once the capillary buds have stuck their necks out, motion of the graft has a guillotine effect"; "it is felt that the pinch graft should be 'buried' forever"; "it is more difficult to fill out a thin graft on the face than it is to trim down a flap that is too fat"; "the failure of vaginal mucous membrane to persist on the penis at least prevents the accusation of perpetuating local hermaphroditism"; "skin grafting the urethra . . . may be regarded with fistulous suspicion."

At the "Final Scene," anyone who has attended "a day at the clinic" will have nostalgic memories of similar discussions and arguments and will better appreciate the "happy pen of the long, lithe Yankee" from Miami, "who has so faithfully recorded these words," as well as the excellent interlacing of his own cases so modestly in deference to Sir Harold.

This is a work every plastic surgeon will want to own, as well as every medical library as a reference text.

Albert D. Davis, M.D.

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CONNECTIVE TISSUE IN HEALTH AND DISEASE

—Edited by G. Asboe-Hansen, M.D., Connective Tissue Research Laboratory, University Institute of Medical Anatomy, Copenhagen. The Philosophical Library, 15 E. 40th St., New York 16, N. Y., 1957. 321 pages, $15.00.

The connective tissues, long neglected, have of recent years come into prominence with clinicians largely because of the increasing frequency of "collagen disease." Indeed as long ago as 1950 the Josiah Macy Jr. Foundation sponsored a conference on the subject by 18 members the results of which were embodied in a slender volume dealing largely with structure, function, pathology and chemistry of these substances (Connective Tissues, Trans. of the First Conference, 1950, New York, Ed., Charles Ragan, Josiah Macy Jr. Foundation, New York 21, New York). But interest in the subject has continued to grow and now there appears from Copenhagen a handsome volume of 321 closely printed pages. After an introduction by Asboe-Hansen there come sections on morphology, chemistry and metabolism of connective tissue followed by discussions of pathology both in general and in special diseases. The book is well printed on fine paper, there are adequate illustrations and comprehensive bibliographies with each chapter. The book is an important storehouse of information and opens new vistas for the reader of the part played by these tissues in disease.

Arthur L. Bloomfield, M.D.

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CORONARY HEART DISEASE—Angina Pectoris; Myocardial Infarction

—Milton Plotz, M.D., F.A.C.P., Clinical Associate Professor of Medicine, State University of New York. Paul B. Hoeber, Inc., 49 East 33rd St., New York City 16, N. Y., 1957. 353 pages, $12.00.

This book is a competent, general review of the present status of coronary heart disease by an experienced practitioner. The chapters of etiology and pathogenesis and of lipid metabolism are particularly complete and bring the reader up to date in this important field. There is a discussion of pathology, clinical features, including case reports, a short discussion of electrocardiography, and a short chapter on the surgical treatment and the preventive aspects of coronary heart disease.

One finds little original investigation in the book and the reader who is searching for a new viewpoint will not find it. Nevertheless, most aspects of the subject are covered from the modern point of view and the book, therefore, is recommended for students and general physicians.

The bibliography is up to date but unfortunately no titles are given.

DISEASES OF THE HEART AND CIRCULATION—Second, Revised and Enlarged Edition—Paul Wood, O.B.E., M.D. (Melbourne), F.R.C.P. (London), Director, Institute of Cardiology, London. J. B. Lippincott Company, Philadelphia, 1956. 1005 pages, $15.00.

This is one of the finest works on diseases of the heart available to the English-speaking physician and should be in the library of every physician whether student, general practitioner or specialist. The author is director of the Institute of Cardiology in London and writes from a wealth of personal experience, both clinical and investigative. One of the most striking features of the book is the lucid, precise manner in which the author expresses his position so that his comments are made in the fewest possible words. The style permits an amazing amount of information to be incorporated in a relatively short space.

Particularly outstanding are the many illustrations showing venous pulse tracings, phonocardiograms, electrocardiograms, radiograms and other illustrations which bring the subject matter into sharp focus. The chapter on physical signs is superb, probably the finest discussion of physical signs of heart disease in the literature. The chapter on congenital heart disease is particularly comprehensive, authoritative, and reflects the author's major contributions in this important field. The same may be said for the chapter on chronic rheumatic heart disease, particularly that dealing with mitral valvular disease.

Dr. Wood has integrated the findings at the bedside with more modern investigations, such as cardiac catheterizations, angiography, and phonocardiography, and at all times has emphasized the bedside-clinical approach to the patient.

The chapter on special investigations brings the reader up to date on all the current methods of studying patients, including dye dilution curves, arterial pulse tracings, cardiac catheterization, angiography, phonocardiography, and respiratory function studies. There is a critical appraisal of each of the techniques.

If one were to suggest sections that could be expanded in future editions, one might include the following: (1) In the management of heart failure where there is an inadequate discussion of the biochemical and metabolic disturbances associated with the treatment of heart failure; (2) the section on the details of the use of ganglionic blocking agents in hypertension could be expanded; (3) the details of the management of the complications of ischemic heart disease; (4) discussion of peripheral vascular disease. It is perhaps natural that these relative deficiencies in space have occurred because the book is intensely personal, describing the author's own experiences. The areas of his own research, in which important recent contributions have been made, have received major emphasis.

Each chapter is followed by an excellent international bibliography, including the titles; the selection of references has been particularly good.

It is predicted that this book will have a wide audience and will have a significant impact on the approach to cardiology in this country. The reviewer recommends the book most highly, and believes it is a classic in the field.

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CLINICAL PATHOLOGY—Application and Interpretation—Second Edition—Benjamin B. Wells, M.D., Ph.D., Director of Clinical Investigation, The Lynn Clinic, Detroit. W. B. Saunders Company, Philadelphia, 1956. 488 pages, 25 figures, $8.50.

This book, now in its second edition, deals with the interpretation of clinical laboratory studies. Its purpose is entirely practical. The topics are selected and developed as they pertain to the more urgent and frequent needs of medical practice; the material is arranged as the physician uses it. Beginning with a clinical problem, useful laboratory tests are named and discussed. An attempt is made to include enough theory and methodology to give proper meaning to the procedures and to define their limitations.

The text has been extensively rewritten to reflect developments of the five years which have passed since the first edition. A short chapter, which has been added on laboratory methods, can be of use to medical students and doctors interested in performing their own office and bedside tests. A discrepancy worthy of note: certain of the details of methods given in this chapter vary from those given for the same tests in the 12th edition of *Clinical Diagnosis by Laboratory Methods*, of which Dr. Wells is a co-author and which is a companion book to the one under review.

In the introductory considerations, the author expresses his desire to teach the practitioner three things about the laboratory procedures that he uses: (1) when to use them; (2) how to interpret the results; and (3) what technical or physiologic restrictions must be taken into account in the interpretation. Throughout the book he makes an earnest effort to discuss tests and their results as they apply to a large number of common clinical problems and he keeps in mind the limitations of average office and hospital practices.

We feel that the author has done a very sensible job in his interpretation of laboratory tests. Stated simply, his book suggests what tests are practical to use, under what circumstances they should be used, and which tests are not practical and why. It brings the doctor up to date on a large number of procedures and evaluates their present practical worth, their difficulties and cost. It is highly recommended.

EDGAR WAYBURN, M.D.

* * *

PRACTICAL DERMATOLOGY—Samuel M. Peck, B.S., M.D., Associate Clinical Professor of Dermatology, Columbia University; with Laurence L. Palitz, M.D., Ph.D., Attending Dermatologist, Long Island Jewish Hospital. Landsberger Medical Books, Inc., Blakiston Division, McGraw-Hill Book Co., New York, 1956. 380 pages, $7.00.

This is a concise, handy text, useful for quick reference in the field of dermatology. There are 380 pages. The discussion of treatment of various dermatoses is handled intelligently and with thoroughness. There are not enough pictures and many of the pictures utilized are blurred or in poor focus or do not reveal detail.

This book does not offer anything in a unique way; it is a conventional text, of which there are many already in print superior to this one.

* * *

NOTES ON ATOMIC ENERGY FOR MEDICAL OFFICERS—An Introduction to the Subject—Royal Naval Medical School, Alverstoke, Hampshire, England. Philosophical Library, 15 E. 40th St., New York 16, N. Y., 1956. 169 pages, $4.75.

This textbook or manual for the British Navy doctors starts in a very elementary way. It is brief but aims to cover the essential physics and biology as well as the effects of nuclear weapons. Although there is a chapter on the hydrogen bomb, no other references are made to writings later than 1950, and the text suggests that this is the time it was written. Some of the brief presentations of difficult ideas are very good, but in other places they appear to suffer from the author's lack of complete familiarity with his subject. Some quantitative statements are at variance with what is generally accepted, e.g. that 50 r doubles mutation rate in *Drosophila* (it presumably does in mice). The half value layers for barriers to protect from 3 Mev gamma rays appear exaggerated by half. Several appendices provide pertinent quantitative data. Line drawings illustrate the text and a dozen halftones are gathered just before the short index.

R. R. NEWELL, M.D.

MICROANALYSIS IN MEDICAL BIOCHEMISTRY—Third Edition—E. J. King, M.A., Ph.D., D.Sc., F.R.I.C., Professor of Chemical Pathology, University of London Postgraduate Medical School, and I. D. P. Wootton, Ph.D., M.A., M.B., B.Chir., F.R.I.C., Lecturer in Chemical Pathology at the Postgraduate Medical School, London. Grune & Stratton, New York, 1956. 292 pages, $4.00.

This book is a working manual of clinical laboratory procedures for use by routine and teaching laboratories at the Postgraduate Medical School of the University of London. The term "micro" in the title refers to the fact that most of the methods for blood are devised for use with 0.1-0.2 ml. of sample. There are separate chapters dealing with analyses for various chemical constituents of whole blood, plasma, or serum. The technique of filter paper electrophoresis for plasma protein is next described, followed by methods for determination of protein and chlorides in spinal fluid. A number of analytical procedures for use with urine or feces are then treated. The identification of reducing substances in urine by paper chromatography is a useful addition to this chapter. Under the chapter heading "Tests of Function," some metabolic tests such as glucose and galactose tolerance and pyruvate metabolism as well as tests of renal function (urea, inuline, creatinine, and para-aminohippurate clearance) are described. The applications of radioisotopes to clinical diagnosis are illustrated by measurements of extra cellular fluid volume using radio bromide, plasma and blood volume with I^{131}-labeled albumin, and excretion or plasma uptake of radioiodine as thyroid function tests. The use of the direct vision spectroscope is taught by examination for certain pigments in blood, urine, or feces and quantitation of carbon monoxide in blood. Gastric and duodenal analyses, and analyses of calculi are discussed in other sections.

This text has enjoyed two prior editions, including translations into several foreign languages. In the present edition, the material has been revised and brought up to date notably by eliminating all reference to the Duboscq and other simple colorimeters and expanding the treatment of absorption spectrophotometry both in its theoretical and practical aspects. A separate chapter has also been devoted to flame photometry.

The arrangement of the book is that usually associated with a laboratory manual for teaching clinical laboratory methods, As such it should serve not only as a text but also as a practical and concise reference for the performance of the numerous clinical laboratory procedures which it describes.

Harold A. Harper, Ph.D.

* * *

PRINCIPLES OF CLINICAL ELECTROCARDIOGRAPHY—Mervin J. Goldman, M.D., Assistant Chief of the Medical Service and Cardiologist, Oakland Veterans Administration Hospital; Assistant Clinical Professor of Medicine, University of California School of Medicine. Lange Medical Publications, Los Altos, 1956. 310 pages, $4.50.

This compendium of electrocardiography is a genuine bargain in regard to completeness, clarity and price. It is paperbound (is this the welcome revolt against expensive hard-covered books that are dated as soon as published?), but sturdy. It is written for the generalist and the internist whose hobby is other than cardiology. Nevertheless, it is sophisticated, constantly devolves on basic electrophysiologic theory and is astonishingly complete; hence, it is a book from which medical students can get their electrocardiographic bearings. Its value lies in its succinctness. It should find a ready place in the office for the practitioner to use. Its complete index will help him interpret a problem tracing.

The first 71 pages deal with definition of normal electrocardiographic configurations and their production. The diagrams are exceptionally well drawn. However, in picturing the complexes in natural size, the details are often blurred (as in the depiction of the R′ (r′) wave on page 23). The discussion of the cardiac vector in only 4 pages of text and diagrams is admirably concise.

The figures depicting the electrical positions of the heart are especially clear. The quintet of electrocardiographic pathology: Ventricular hypertrophy, myocardial infarction, bundle branch block and arrhythmias are succinctly presented and each subdivision adequately diagrammed in 160 pages. Master's two-step test is well-discussed: Positive signs, contraindications and pitfalls. Pseudo-ST-depression is delineated well.

Although pericarditis is neatly described and well-illustrated by example tracings, the sample typical ST-elevation with concavity upward on page 251 is hardly different from the convexity-upward of infarction just below it.

The effect of drugs and electrolyte imbalance is well done.

The text closes with fifty-odd tracings for practice interpretation. The pages carrying the discussion pertinent to the interpretation is given.

Wisely, pseudo-definitive patterns for congenital defects are not listed.

* * *

THE VISUAL FIELDS—A Textbook and Atlas of Clinical Perimetry—David O. Harrington, A.B., M.D., F.A.C.S., Clinical Professor of Ophthalmology, University of California School of Medicine. The C. V. Mosby Company, St. Louis, 1956. 327 pages, 234 illustrations, and nine color plates, $16.00.

This textbook has a scientific basis with a clinical approach.

The book begins by explaining perimetry of the most elemental type to that which requires highly specialized techniques and equipment. The use of the tangent screen is advocated as the most practical clinical procedure in the average type of case.

The multiple pattern type of method, which is becoming deservedly popular, is explained. This method provides a rapid efficient screening procedure which can be operated by any office technician.

The chapter on anatomy is an excellent review of the visual pathway well worth any clinician's time.

The illustrations are taken from the author's extensive files and correlates the field study with the clinical findings and the pathology.

This book is a must in the reference library of each ophthalmologist.

Alfred R. Robbins, M.D.

* * *

CLINICAL LABORATORY METHODS—Fifth Edition—W. E. Bray, M.D., Consulting Laboratory Director, Martha Jefferson Hospital. The C. V. Mosby Company, St. Louis, 1957. 731 pages, 124 text illustrations and 18 color plates, $9.75.

This fifth edition of this excellent clinical laboratory methods textbook compares very favorably with the fourth edition which was published by the C. V. Mosby Company in 1951. It is approximately the same size as the fourth edition having 124 text illustrations compared to 119 text illustrations in the 1951 edition. It has 18 color plates which is identical to that in the 1951 edition. It has 731 pages compared to 579 in the previous edition. This fifth edition, as the fourth, covers the entire field of clinical laboratory methods and includes such new subjects as electrophoresis and paper chromatography, as well as the study of abnormal hemoglobins. It has excellent coverage of hematology, clinical chemistry, bacteriology, and other fields of clinical laboratory medicine. This book is highly recommended.

Paul Michael, M.D.

GENERAL UROLOGY—Donald R. Smith, M.D., Clinical Professor of Urology and Chairman of the Department of Urology, University of California School of Medicine. Lange Medical Publications, P. O. Box 1215, Los Altos, 1957. 328 pages, $4.50.

This rather concise treatise on urology, designed for the medical student and general practitioner, is the latest of several texts of this type that have appeared in recent years. One might almost wonder whether it fills any crying need, in view of the many others of the same nature already available.

However, we are not disparaging the quality of this volume. Dr. Smith has produced a good work, and his material is well arranged and surprisingly complete. The fact that the book is lithographed rather than printed, on paper of less than the usual book quality and with paper binding, detracts somewhat from the general appearance of the work and from the technical quality of the illustrations· Presumably this is done to reduce the cost, and the publisher's list price is below the usual level.

This defect, if it is one, does not lessen the value of the text. The writing is concise and accurate and includes an enumeration of practically all the latest developments in urology. Its outline form makes it easily read and understood. The illustrations are many, largely line drawings and x-ray reproductions. They are well selected and entirely adequate, even though not as beautifully reproduced as in the average text.

On the whole Smith's *General Urology* is sufficient for its intended purpose, to give the nonspecialist reader a basic idea of urological diagnosis and treatment. Naturally it is entirely inadequate to supply detailed information on any but the most simple technical procedures. Its semipermanent format suggests that it might be more suitable for rather temporary use by the medical student than as an addition to the permanent library of the practicing physician, but it is a good book.

* * *

THE YEAR BOOK OF DRUG THERAPY—1956-1957—Edited by Harry Beckman, M.D., Director, Departments of Pharmacology, Marquette University Schools of Medicine and Dentistry. The Year Book Publishers, Inc., 200 East Illinois St., Chicago 11, Illinois, 1957. 514 pages, $6.75.

The 1956-57 volume of the Year Book of Drug Therapy holds to the high standards of coverage it has maintained during the years it has been edited by Dr. Beckman. The articles in the present volume are abstracted from journals received between August 1955 and August 1956.

The widespread interest in drugs which affect mood and behavior and the large number of articles published in this field is reflected in this year's volume, which devoted some 50 pages (the largest amount of space given to any one section) to abstracts on neuropsychiatric disorders. The toxicity of the various compounds is emphasized properly by a number of abstracts.

In addition, the editor comments on recent biochemical investigations of the mental processes, or "psychopharmacology," of a deeper nature than those undertaken heretofore. The findings are still of a nebulous nature, but have revealed two compounds which seem important, 5-hydroxytryptamine (or serotonin) and lysergic acid diethylamide (LSD). Serotonin is widely present in the body, with the highest concentrations in areas of the brain associated with the autonomic nervous system. Some workers postulate a certain serotonin content in the brain as necessary for normal mental processes and at least some mental illnesses (e.g., schizophrenia) as expressions of serotonin deficiency. According to this hypothesis, reserpine merely liberates serotonin in the brain. LSD, an ergot derivative, is one of a group of compounds which antagonize serotonin. The tentative nature of these investigations must be emphasized but they give one a look at intriguing possibilities.

Other sections are treated less exhaustively but there is good coverage in all branches of therapeutics. As we have in previous years, we recommend this series to the practitioner who cannot take the time to abstract his own literature.

Edgar Wayburn, M.D.

* * *

THE DOCTOR AS A WITNESS—John Evarts Tracy, Professor of Law (Emeritus), University of Michigan. W. B. Saunders Company, Philadelphia, 1957. 221 pages, $4.25.

The world in which the modern physician practices is one somewhat contaminated by radioactive fallout and litigious aromatics. It is said that modern lawyers are being given courses in medicine, at least in anatomy. We suppose that modern medical students will soon be given courses in law, or at least elementary jurisprudence. If this should transpire, the "Doctor as a Witness" should prove of assistance to the neophyte.

The book is divided into 12 chapters, the headings of which are as follows: The doctor is called as a witness in a legal proceeding; the privileges and obligations of the doctor witness; opinion, evidence and expert testimony; direct examination of the doctor witness; cross examination; testimony on the issue of insanity; testimony in workman's compensation proceeding; testimony in malpractice cases; preparation for trial or hearing, and three chapters dealing with the composition of a good medical witness, the compensation of same and the consideration of potential improvements in the law.

Much of the book is clear and presumably factual, but in a few places it might appear that the law in Michigan is somewhat different from that in California. At any rate, on page 77 the statement is made that the introduction of roentgenograms in court requires the presence of the technician "who took the photograph." This certainly is no longer the case in this state.

Under the section on proposed improvements, the author does not stress the desirability of abolishing the introduction of roentgenograms, even though he states that in most jurisdictions the doctor will be permitted to testify on roentgenograms that have become lost or are otherwise unavailable.

In connection with the introduction of motion pictures as evidence, the author points out that judges are generally opposed to such in a court trial because: (1) they take up considerable time in arrangements for the showing, (2) they divert the attention of the jury from matters which are really of more importance in the case, and (3) *they tend to exaggerate in the minds of the jury the facts which they are offered to prove.*

These are precisely the reasons why some judges and many thoughtful physicians believe that the day of introduction of roentgenograms in court should be past. They are devices to sway the emotion of the jury rather than to inform.

Some books are written in the flush of youth, some during convalescence from illness and some in the leisure of retirement. The author is a retired teacher of law and it is possible that some of the modern legalistic techniques unfortunately in use in western America are not entirely familiar to him. The book has a deliberate and thoughtful tone which, while making it readable, causes this reviewer to question its complete applicability to the phrenetic conduct of some of our more notorious local plaintiffs' lawyers.

The type face is large and clear; the index is brief but adequate.

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(Continued from Front Advertising Section Page 38)

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The editorial also listed some of the restrictions and precautions in the use of tolbutamide.

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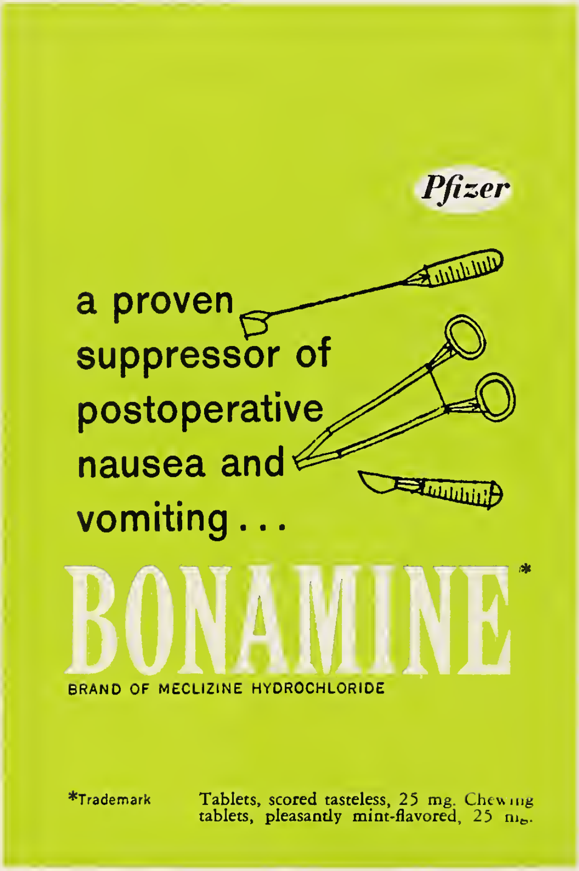

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(Continued from Front Advertising Section Page 42)

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(Continued on Page 84)

Medicine, Religion Move Closer Together

American medicine and religion are in closer accord today than in any period in modern times, according to the *Journal of the American Medical Association.*

A special article and editorial in a recent issue of the *Journal* discusses the growing cooperation between our half million "men in black" and "men in white."

Perhaps this has happened because the individual is reemerging from his "part-of-the-mass" status which came with mechanization and specialization of society, the editorial said. With leisure time overtaking working time, the individual shines again, and he "wants to know more and more about himself and how he relates to all men and all things of all times."

In fact, medicine and religion seem to be on the threshold of a "unified field theory" of faith and health, the article said. At the same time, the old concept of the "godless doctor" is dying. For instance:

A Chicago physician, Dr. C. David Brown, who participated in a two-and-a-half-hour struggle to revive a young man whose heart had stopped, said, "Actually, we never were sure throughout that we were completely alone in this thing. We knew we were getting some guidance."

Clergymen are developing a greater interest in medicine, especially in the field of mental health. A number of rabbis have stepped out of synagogue leadership to become practicing psychiatrists, as have at least six North American Catholic priests.

Eleven years ago the recognition of religion at New York's Bellevue Hospital was termed unique because all patients had to be seen by a minister. Today the uniqueness has turned into an "almost matter-of-fact routine," the article said. Of the 7,000 hospitals in the U. S., 1,100 have some religious affiliation, and most of the rest have available the services of ministers of the three major faiths. At least 35 hospitals (more than half of them mental hospitals) have clergymen and seminary students receiving pastoral training in actual contact with the sick and the dying.

On May 8, Texas Medical Center's Institute of Religion, Austin, will celebrate its first anniversary. In this institute students from five Texas theology schools are trained to minister to the sick, while medical students are offered elective courses in religion "to help them learn about the resources the church can offer them in their practice."

The new National Academy of Religion and Mental Health has been organized with a membership of 400 clergymen of all major faiths, 400 members of the American Psychiatric Association, and 300 psychologists, sociologists, and laymen. Regionally there are similar organizations established to coordinate pastoral care and clinical experience through seminars or training in hospitals.

(Continued on Page 68)

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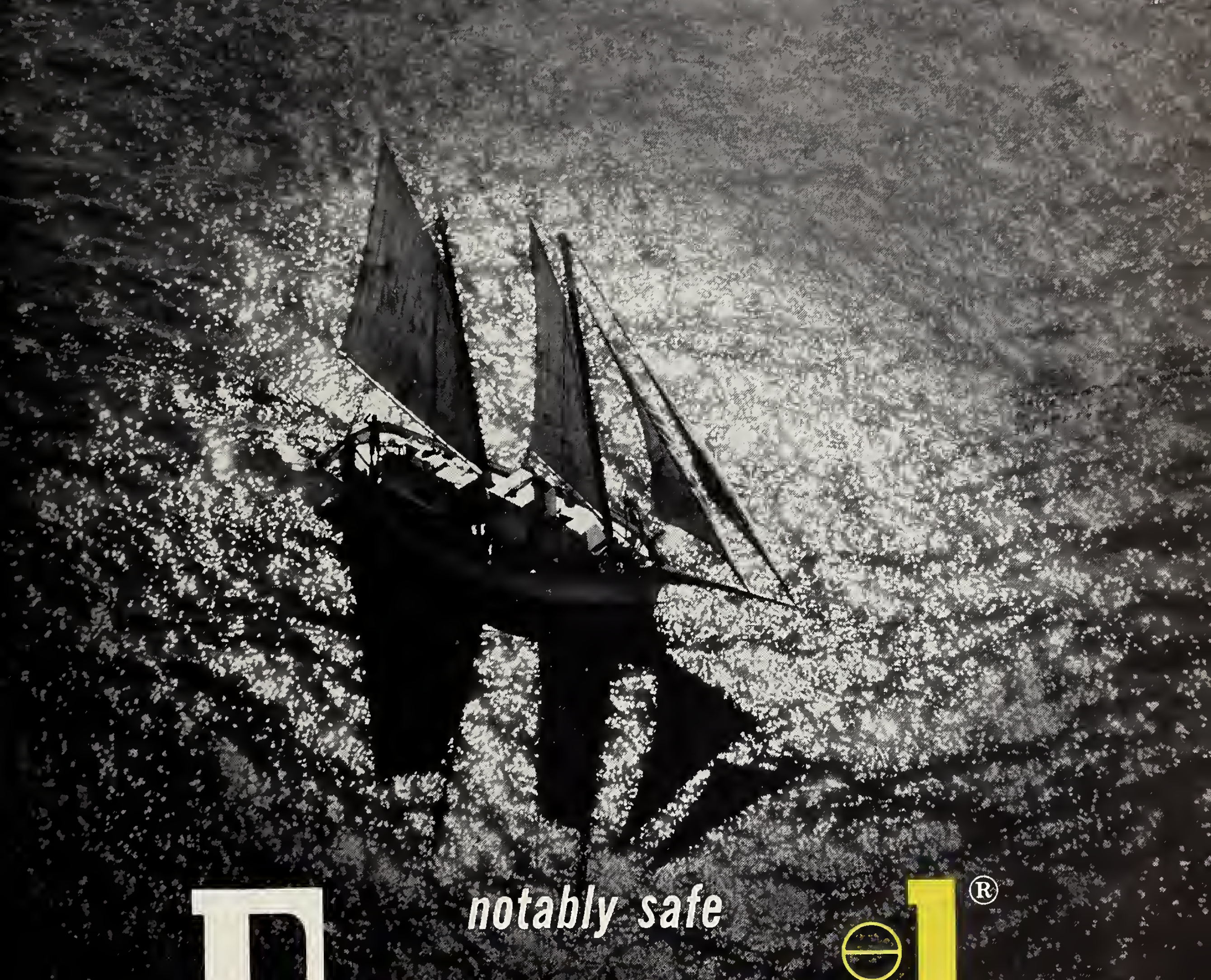

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Medicine, Religion Move Closer Together

(Continued from Page 64)

Most clergymen offer only moral and religious advice, referring potential psychiatric cases to physicians. This has evolved into a unique service at the Marble Collegiate Church, New York City, where there is a full-time staff of psychiatrists, psychologists, and ministers offering a "team approach" to all who seek help.

Members of both groups are careful not to infringe on the realm of the other. Yet their viewpoints are so overlapping it is sometimes hard to tell whether it is a doctor or a clergyman speaking, the article said. For instance:

Dr. Claude E. Forkner, professor of clinical medicine at Cornell University Medical College, Ithaca, N. Y., said, "Very often we do not know what it is that brings about the recovery of the patient. I am sure that often it is faith which is a most important factor."

Rabbi Fred Hollander, chaplain at Mt. Sinai Hospital, New York, said, "The presence of a clergyman in the sick room can sometimes produce a feeling of apprehension or even-antagonism in the patient."

(Continued on Page 72)

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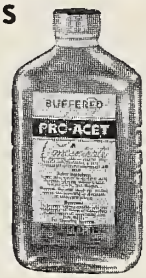

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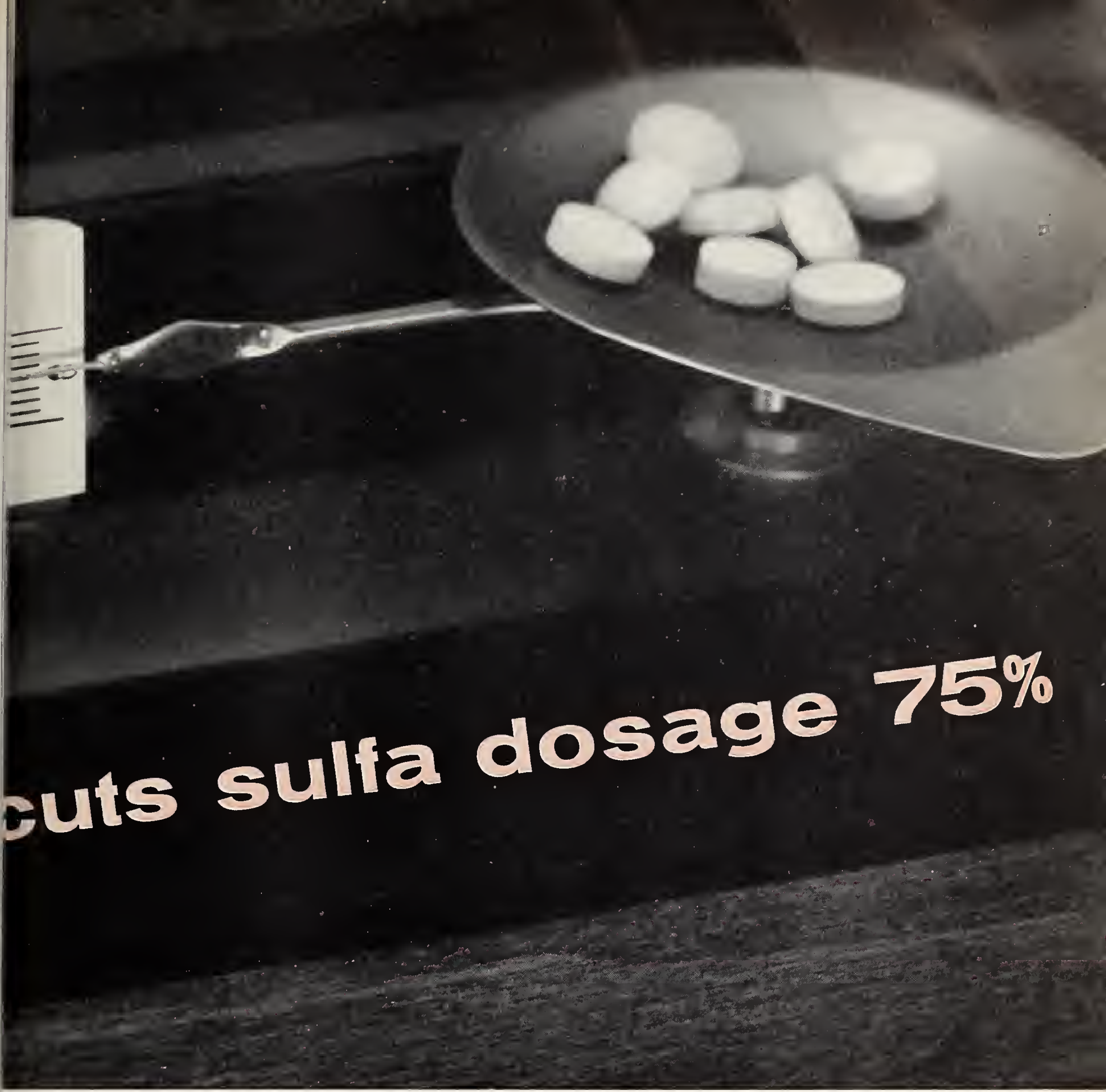

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1. Boger, W. P.; Strickland, C. S. and Gylfe, J. M.: Antibiot. Med. & Clin. Ther. 3:378 (Nov.) 1956.

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Medicine, Religion Move Closer Together

(Continued from Page 68)

While they may recognize that faith is an element in the well-being of all people, ethical ministers and physicians are firmly allied against the "fake healers," whose huge fund-raising exhibitions exploit the superstitious wishful thinking of the uninformed and misinformed. Both groups are working to combat the "flamboyant cultists."

Studies to correlate more fully the body and spirit already are under way, the article said. The Institute of Religion in Texas is laying out research projects that will probe more deeply into the care of the mentally ill and the relatively unexplored ministerial influence on the aged and handicapped.

Three universities (Yeshiva, Harvard, and Loyola of Chicago) have launched a comprehensive project aimed at standardizing psychological training of theological students of the three major U. S. religions. The study is being financed by grants from the National Institute of Mental Health.

Physicians and clergymen interpret clinical studies now under way as possible doorways to the "unified field theory," the article said.

Forerunner in this "new medicine" is Dr. Hans Selye, Montreal, whose experiments point up stress as a measurable factor in gauging an individual's physical condition. Conducting detailed research along similar lines is Dr. Harold G. Wolff, a neurologist at Cornell University Medical College. "His thesis is that hope, like faith and purpose in life, is medicinal," the article concluded.

Principle of Physics Helps Explain Atherosclerosis

The principle of physics on which the airplane's airfoil and many hydraulic devices have been based also helps explain the development of various circulatory disorders, according to a New York physician.

In fact, the motion of fluids as formulated in "Bernoulli's theorem" is a primary factor in the development of atherosclerosis, one type of hardening of the arteries, Dr. Meyer Texon of the New York University Post-Graduate Medical School said.

In addition, it may help to explain sudden heart attack deaths following exertion or emotional disturbances, since hemodynamics—the technical term for the motion of blood—plays a role in the development of coronary occlusion and coronary thrombosis, he said in the American Medical Association's recent issue of *Archives of Internal Medicine.*

According to Bernoulli's theorem, fluid in motion possesses energy because of its velocity and its pressure. When velocity increases and static pressure decreases—as on the inside of a curved tube—a suction effect is created. This principle of suction

(Continued on Page 76)

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Principle of Physics Helps Explain Atherosclerosis

(Continued from Page 72)

has been applied to the airfoil and to many hydraulic devices.

In the circulatory system, the suction effect is produced in abrupt curves, at points of branching, or at points where vessels join.

The suction effect tends to pull the inside of the vessel walls toward the center of the vessel. This causes the inner layer of the wall to thicken at this point. Continued exposure to suction stimulates further changes and the typical atherosclerotic plaque develops, he said.

Eventually the inner layer of the plaque becomes detached, which produces a raw or ulcerated surface to which blood elements become attached to form a thrombus, or clot. This eventually occludes, or clogs, the vessel. Sometimes these ulcerated spots tear and allow hemorrhaging of the vessel.

When stress, exertion or emotional disturbances cause sudden increases in heart beat and blood velocity, acute complications may occur in vessels already damaged by the normal motion of the blood, he said. A thrombus may suddenly form or an ulcerated surface may tear and allow hemorrhaging.

This may be what happens in some sudden deaths due to "acute coronary disease with antecedent progressive coronary atherosclerosis," or in cases of acute coronary occlusion with myocardial infarction which follow strenuous exertion or extreme emotional disturbances, Dr. Texon said.

Tuberculosis Patients Need Immediate Hospitalization

A person with a newly diagnosed case of tuberculosis should be hospitalized immediately, according to a guest editorial in a recent issue of the *Journal of the American Medical Association.*

"The really critical period in treatment of tuberculosis falls in the first few days or weeks after diagnosis," Dr. R. H. Browning said. He is from the Ohio Tuberculosis Hospital and the Ohio State University College of Medicine, Columbus.

Into this brief period are crowded the initial decisions about the seriousness and treatment of the disease, the formation of the patient's attitudes toward his disease, and the establishment of protective measures for his family. These can be carried out best if the patient is in a tuberculosis hospital.

The hospital has all the necessary equipment for accurate diagnosis and evaluation of the disease. It is the best place to start the patient on the most effective drugs. Too often, the patient at home may forget or refuse to take medicine.

(Continued on Page 80)

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TASHAN T.M.

Tuberculosis Patients Need Immediate Hospitalization

(Continued from Page 76)

Only rarely is it possible to isolate a patient at home, he said. Fortunately. modern treatment makes the early active stage fairly brief and hospital care is not necessarily prolonged for public health reasons.

However, the time in the hospital is important since it offers an opportunity for the patient to learn about his disease and the limitations it imposes upon him. The practicing physician is usually too busy to devote the time required for educating a new patient. Failure to understand leads to an excessive rate of progression and relapse, he said.

Thus hospitalization should be prompt, so the patient "may pass through his critical period safely and be on his way toward convalesence with minimum risk to himself and his associates," Dr. Browning concluded.

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Marquis, D. G., Kelly, E. L., Miller, J. G., Gerard, R. W. and Rapoport, A.: Ann. New York Acad. Sc. 67:701, May 9, 1957.

2 "Since it [meprobamate—'Miltown'] does not cloud consciousness or lessen intellectual capacity, it can be used . . . even by those busily occupied in intellectual work."

Keyes, B. L.: Pennsylvania M. J. 60:177, Feb. 1957.

3 ". . . the patient never describes himself as feeling detached or 'insulated' by the drug ['Miltown']. He remains completely in control of his faculties, both mental and physical . . ."

Sokoloff, O. J.: A.M.A. Arch. Dermat. & Syph. 74:393, Oct. 1956.

4 "It ['Miltown'] . . . does not cloud the sensorium, and has a helpful somnifacient effect devoid of 'hangover'."

Kessler, L. N. and Barnard, R. D.: M. Times 84:431, April 1956.

5 "In anxiety and tension states, meprobamate relaxes without dulling cortical function to the same extent as the commonly-used barbiturates."

Rindskopf, W., Ravreby, M., Gutenkauf, C. and Sands, S. L.: J. Iowa M. Soc. 47:57, Feb. 1957.

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(Continued from Page 64)

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BOOKS RECEIVED

(Continued from Front Advertising Section Page 48)

SURGERY—Principles and Practice—J. Garrott Allen, M.D., Professor of Surgery, University of Chicago; Henry N. Harkins, M.D., Ph.D., Professor of Surgery, University of Washington School of Medicine; Carl A. Moyer, M.D., Bixby Professor of Surgery, Washington University School of Medicine, St. Louis; and Jonathan E. Rhoads, M.D., D.Sc. (Med.), Professor of Surgery, University of Pennsylvania School of Medicine and Graduate School of Medicine, Philadelphia. J. B. Lippincott Company, Philadelphia, 1957. 1495 pages, $16.00.

SYNOPSIS OF GASTROENTEROLOGY — Rudolph Schindler, M.D., Clinical Professor of Medicine (Gastroenterology), College of Medical Evangelists. Grune & Stratton, New York, 1957. 395 pages, $7.75.

THERAPEUTIC EXERCISE—For Body Alignment and Function—Marian Williams, Ph.D., Assistant Professor of Physical Therapy, School of Medicine, Stanford University, and Catherine Worthingham, Ph.D., Director of Professional Education, The National Foundation for Infantile Paralysis, Inc., W. B. Saunders Company, Philadelphia, 1957. 127 pages, $3.50.

ULTRAMICRO METHODS—For Clinical Laboratories—Edwin M. Knights, Jr., M.D., Associate Pathologist, Director of Clinical Pathology and Blood Bank; Roderick P. MacDonald, Ph.D., Director of Clinical Chemistry; and Jaan Ploompuu, Chief, Division of Ultramicro Chemistry, all of Harper Hospital, Detroit. Grune & Stratton, New York, 1957. 128 pages, $4.75.

VEGETABLE OILS IN NUTRITION—With Special Reference to Unsaturated Fatty Acids—Dorothy M. Rathman, Ph.D., Corn Products Refining Company, 17 Battery Place, New York 4, N. Y., 1957. 70 pages, no price quoted.

WOMAN DOCTOR LOOKS AT LOVE AND LIFE, A—Marion Hilliard, M.D., Doubleday and Company, Inc., 575 Madison Avenue, New York 22, N. Y., 1957. 190 pages, $2.95.

YOUR WONDERFUL BODY—Peter Pineo Chase, M.D., Prentice-Hall, Inc., Englewood Cliffs, N. J. (70 Fifth Ave., New York 11), 1957. 391 pages, $5.95.

Blood Tests Urged in All Paternity Suits

Blood-grouping tests should be carried out in uncontested paternity suits as well as in contested ones, a New York City physician and a lawyer said recently.

Tests for matching the child's blood with that of the supposed father are used now only when the accused man denies paternity. If the man admits paternity, he is not given a blood-grouping test.

However, a study of 67 "typical" cases in which the men admitted paternity in court showed that from 12 to 18 per cent of the men were probably not the fathers of the children they accepted in the court, according to Dr. Leon N. Sussman, attending physician at Beth Israel Hospital, and Sidney B. Schatkin, LL.B., assistant corporation counsel of the City of New York.

In addition, previous studies have shown that from 30 to 40 per cent of the men who deny paternity and who are given blood tests are falsely accused. Thus, in the interests of justice, a blood test should be ordered in every case involving a charge of paternity, the authors said in a recent issue of the *Journal of the American Medical Association.*

The authors studied blood tests performed on involved persons after their uncontested suits were settled. The method was the usual one of duplicate testing by different technicians using different lots of blood serum. The three standard groupings, A-B-O, M-N, and Rh-Hr, were tested, as well as two lesser known groups.

The tests indicated that of the 67 men involved, six "absolutely" were not the fathers of the involved children. Since earlier studies have shown that tests using the three standard groups can clear only 50 per cent of falsely accused men, it follows that not six but 12 of these men were probably not the fathers of the children they accepted, the authors said.

They pointed out that testing must be restricted to qualified experts, since familiarity with the testing methods and a knowledge of blood factor heredity are essential. However, rapid air transportation makes the laboratory expert easily accessible.

Although the number of cases studied was small —due to difficulty in obtaining cooperation of persons after their cases were closed—the figures have "a significant bearing" on the reliability of admissions of paternity which are "routinely and perfunctorily" accepted daily in court, the authors said.

The motivation for these admissions of paternity without scientific proof are interesting, they said. Usually a man admits to paternity for one of the following reasons: a sincere belief that he is the father; a sense of pride arising from the fact that he could be the father; no feeling of responsibility; inability to afford defense and blood tests costs, or a misunderstanding of the meaning of paternity.

Books for Sick Persons Need Careful Selection

When selecting a book for a sick friend, it's well to consider the book's effect on his morale, a hospital librarian said recently.

Writing in a recent issue of *Today's Health*, the American Medical Association's health magazine, Rose Burket, Benton Harbor, Mich., pointed out that a book can do much for a patient, provided it is wisely selected. It should be one that can be used "now," she said.

"The psychological effect of getting a book beyond the patient's capacity is not good. The patient may reason, 'I'm not getting well. I can't even read a book.' Choose a book with good print that is not too long—one that the patient looks forward to reading as a pleasant occupation."

An inflexible rule for hospital librarians that should also be observed by friends is: "never give a patient any book you have not read, since he may identify himself with some unfortunate character or incident," she said.

If the main character of the book died of a heart attack, the book would be an unfortunate choice for a heart patient, while for a new mother or someone

(Continued on Page 89)

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Books for Sick Persons Need Careful Selection

(Continued from Page 87)

with a fracture the incident would have no personal meaning.

All patients lead temporarily restricted and abnormal lives, so books with neurotic characters or horror scenes that may return to disturb the patient should be avoided, Miss Burket said.

Friends sometimes make the mistake of choosing a book to their own taste rather than the patient's. So when choosing a book, think first of the patient's interests and then visualize him as he is right now. For instance, someone with one arm in a cast needs a book he can hold in one hand, while a person with one eye bandaged needs a book with large type.

Often patients have to learn to live with their diseases. Then doctors sometimes recommend that they read books dealing with their diseases.

A book may subtly implant an encouraging idea or it may prove so absorbing that physical discomfort is ignored, she said. It offers the patient stimulating or quiet companionship without taxing his strength. It need not be a best seller or even new, but it must be chosen with the interests and needs of the reader in mind, Miss Burket concluded.

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1. Levy, S., *JAMA.*, 153:1260, 1953
2. Thompson, L., Procter R., *North Carolina M. J.*, 15:596, 1954
3. Thompson, L., Procter, R., *Clin. Med.*, 3:325, 1956

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Postmortem Changes Confuse Blood Alcohol Tests

Because alcohol may diffuse out of the stomach after death, special care must be taken in measuring alcohol levels in the blood during autopsy, two San Francisco physicians stated recently.

Blood alcohol levels are commonly determined by taking blood from the sac surrounding the heart during autopsy, Drs. Henry W. Turkel and Houghton Gifford said in a recent issue of the *Journal of the American Medical Association.*

However, they have discovered that the alcohol level of blood in this pericardial sac is frequently higher than the level in the femoral vessels of the abdomen and legs. This happens because alcohol ingested just before death diffuses out of the stomach into the nearby areas after death, they said. The postmortem diffusion process does not extend as far as the femoral vessels.

Knowledge of the blood alcohol level at the time of death is frequently very important in criminal or civil court proceedings. Because of the "gravity of decisions" attached to these determinations, they must be accurate, the authors said.

Since determinations made from blood drawn from the heart area may be inaccurate, they recommended that blood from the femoral vessels be used instead.

The authors noted that these errors in measuring blood alcohol levels do not occur in examining the blood of the living, since tissue barriers are still intact and the circulating blood provides for a uniform distribution of alcohol throughout the blood stream.

Dr. Turkel is from the coroner's office of the City and County of San Francisco and Dr. Gifford is from the department of pathology, Stanford University School of Medicine.

Physician Calls Blood Vessel Defect a Vixen

A defect of the blood vessel in the back of the knee was likened to a vixen recently by a New York physician.

A popliteal aneurysm—actually a blister-like swelling of the popliteal artery—is "sly in its apparent benignity" and is often overlooked by patient and physician until it suddenly causes some serious complication, Dr. Jere W. Lord, Jr., said.

It is frequently overlooked because of its location —a place not routinely examined by the doctor and never seen by the patient.

While the popliteal aneurysm is a "sinister harbinger of sudden catastrophe . . . to life and limb," results of surgical treatment are "startlingly good," even in the face of complications, Dr. Lord said in a recent issue of the *Journal of the American Medical Association.*

Popliteal aneurysms may develop in the course of several diseases, usually hardening of the arteries and occasionally syphilitic and bacterial infections. They may also result from fractures and dislocations of the knee joint, and bullet and knife wounds.

Several major complications causing severe pain, gangrene in the lower leg, or even death, may occur if the aneurysm is not treated as soon as it is found.

Dr. Lord treated 16 aneurysms in 13 patients during a seven-year period. All but two of the aneurysms were complicated. There has been no loss of life among the patients, and the only amputation occurred in a patient who had waited too long to obtain treatment for the aneurysm.

There is a variety of operative techniques which can be fitted to the particular case, he said.

Dr. Lord is from the department of surgery at the New York University Post-Graduate Medical School.

Sputum Test Helps Find Lung Cancer

The laboratory examination of sputum frequently can give an early indication of lung cancer, two Albany, N. Y., doctors said recently.

While the test cannot always establish a definite diagnosis, it can indicate the need for further study with other more specialized techniques, Drs. Doris S. Rome and Kenneth B. Olson of Albany Medical College said in a recent issue of the *Journal of the American Medical Association.*

They pointed out that cough and expectoration are common in adults as a result of chronic irritation due to smoking, chronic bronchitis, or acute pulmonary infection.

Such persons should have their sputum examined for cancer cells in an effort to make an earlier diagnosis of lung cancer—if it is present—and thereby begin treatment sooner, the doctors said.

The physicians examined 3,102 specimens of sputum and bronchial aspirates from 1,203 patients in order to detect possible cancer cells. Of these patients, 266 were ultimately believed to have lung cancer. Almost three-fourths of the 266 patients had suspicious or positive results on first examination of sputum or bronchial aspirates.

They said it was possible to establish diagnosis somewhat more accurately with the easily obtained sputum specimens than with bronchial aspirates.

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1. Weil, L. L.: J. Florida Acad. Gen. Pract. 4:9 (July) 1954. 2. Williams, Henry L.: J. Michigan State Med. Society 51:572-576 (May) 1952.

Physicians Increase Role in Civic Activities

Thousands of American physicians today are disproving the misconception that medicine is "an ivory tower papered with greenbacks" by joining other groups in community service projects.

According to an editorial in a recent issue of the *Journal of the American Medical Association,* the physicians are joining in such "nonmedical" activities as safety campaigns, "get-out-the-vote" movements, and school building programs. More and more physicians are finding the time to serve on chambers of commerce, school boards, and better government committees.

All these activities actually are linked to better health for the physician's community. But more than that, they offer a means of putting the physician's practice "in the proper perspective of many doing together what cannot be done alone or separately," the editorial said.

Examples of physicians' community activities were outlined in a special article in the same *Journal.*

A 1955 survey of county medical societies showed that physicians are active not only in blood banks, disease control programs, and graduate education programs, but also in organizing and judging poster and health contests, sponsoring Little League baseball teams and high school science fairs, and working for better civil defense, slum clearance, public education, fire prevention, human relations, and Scout activities.

Beginning in 1951, the Maricopa County Medical Society at Phoenix, Ariz., launched a campaign that put safety belts in thousands of Arizona cars, waged a war on accidental poisoning, and put out a tremendously successful booklet on home safety.

In Decatur, Ill., the last of six new schools soon will be open, partly because of the Macon County Medical Society's 11th-hour support of a construction bond issue. The physicians, their wives, and P.T.A. teams saved the day by distributing 5,000 leaflets financed by the medical society.

Decatur physicians later rallied support for a sewer bond issue and a dam to raise the level of Lake Decatur.

Endeavors by the Bronx (N. Y.) County Medical Society have included smoke abatement, safety programs, vote-and-registration drives, free vitamins for the needy aged, better fire and police protection, improved public transportation, and emergency ambulance service.

"Public service has become so synonymous with medical practice in the Bronx that the average citizen does not hesitate to bring civic problems to his family physician. The patient feels he will get not only a sympathetic ear, but effective action as well," the article said.

(Continued on Page 17)

announcing

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Physicians Increase Role in Civic Activities

(Continued from Page 16)

"Behind this reasoning is a requirement of the Bronx County Medical Society that every member must belong to some civic, fraternal, veterans, service, or other community group. This assures a feel of the public pulse and a field for concerted action on a wide variety of issues."

As a means of increasing understanding among various groups in Omaha, Neb., and Evansville, Ind., joint picnics are held regularly by doctors, business executives, union stewards, ministers, and Kiwanis Club members. The Vanderburgh County Medical Society of Evansville also regularly meets with dentists and druggists in an effort to produce better interprofessional relations.

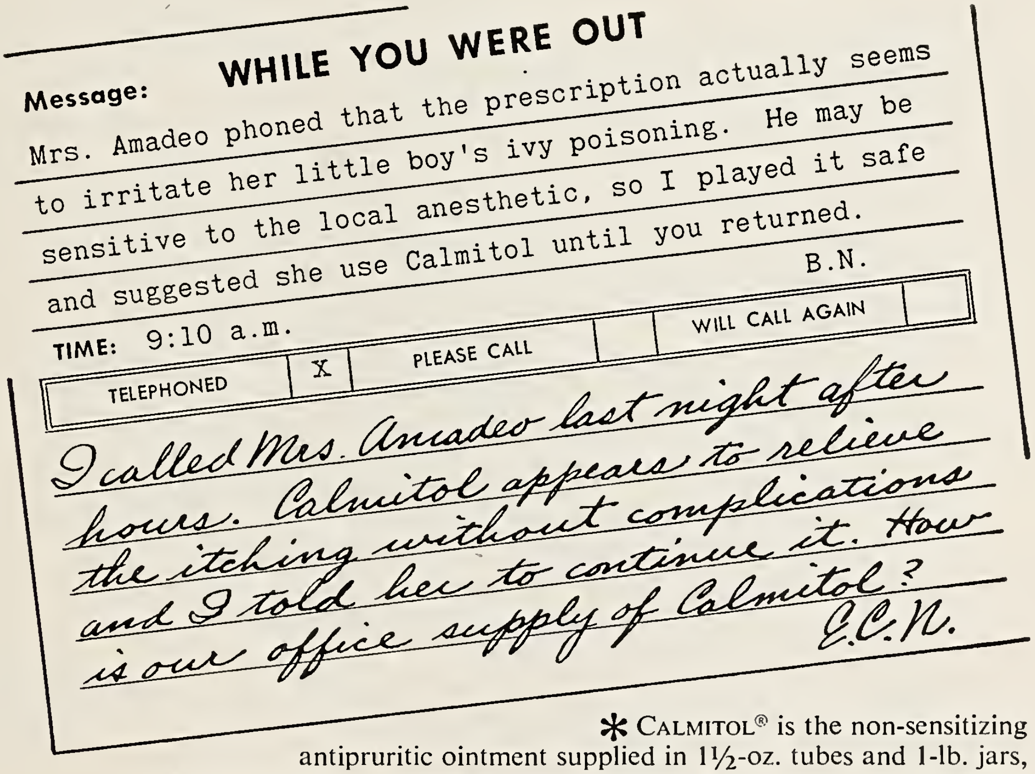
No single organization has worked more closely with physicians in community affairs than the local chambers of commerce, the article said. The Oakland, Calif., Chamber helped finance the first diabetes fair ever held in the West. The doctors of Parkersburg, W. Va., annually cooperate in the Chamber of Commerce's "Business-Education Day" for local high schools.

The New Orleans Chamber of Commerce has awarded the Orleans Parish Medical Society a Good Citizenship citation for promoting a "get-out-the-vote" campaign. Similar drives have been successfully conducted by the Michigan and South Dakota State Medical Associations.

The article quoted Dr. Louis H. Bauer, past president of the American Medical Association, who said, "The ready and constant willingness of the medical profession to take part in civic activities will be helpful to the community in solving health problems and will make the community ready to turn to the profession for advice rather than look to other, less qualified groups."

President Eisenhower Signs Revised Doctor Draft Bill

The revised doctor draft bill has become Public Law 85-62; it was signed by President Eisenhower June 27, four days before the expiration of the old doctor draft law. Under the latter, some 10,000 physicians were called up for two or more years of service, starting back at the time of the Korean war. The new law provides for the selective call-up of physicians and dentists to age 35 if they were deferred from the regular draft at any time after June, 1951, in order to complete their professional training. The law is effective for two years, expiring at the same time as the regular draft. The Defense Department estimates that the 2,200 physicians required by the services this fiscal year will come from volunteers. —*A.M.A. Washington Letter*



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(Continued on Page 46)

Alcoholism Influenced by Social Background

Whether an emotionally maladjusted person becomes an alcoholic depends a great deal on his social and cultural background, the director of the Yale Center of Alcohol Studies said recently.

Seldon D. Bacon, Ph.D., New Haven, Conn., said that psychological factors play a large role in the development of alcoholism, but they cannot be considered as the only cause. They must be considered in respect to the person's society.

Some societies are so constructed that a person with emotional difficulties is not likely to turn into an alcoholic. Instead, he finds some other way to meet his neurotic needs.

Dr. Bacon, who is professor of sociology at Yale University and chairman of the Connecticut Commission on Alcoholism, discussed the sociological aspects of alcoholism in a recent issue of the *Journal of the American Medical Association.* His article is the last of a series prepared by the American Medical Association committee on alcoholism.

He gave four highly-simplified examples of societies and their effect on the development of alcoholism.

Among orthodox Jews, the social functions of drinking are strikingly clear. There is no great emotional feeling about drinking, although it has definite family and religious significance. Emotional maladjustments are as common as in any other segment of American society, and all members of the group drink frequently. Yet alcoholism is practically unknown.

It is highly unlikely that an orthodox Jew would turn to alcoholism as a solution to his emotional problems, because of his "well-instilled belief in the symbolic and sacred character of using alcohol." He would more likely turn to excessive work, gambling, or some other outlet.

Alcoholism is "certainly not rare" among white, middle-class Protestant persons of northern European background, living in the northeastern cities. For this group, the social functions of drinking are "rather vaguely and somewhat defensively described." The rules and procedures show enormous variability, so that a person may follow one set of rules with his family and another with business associates.

The custom is not significantly related to family or religious institutions and there is great emotional feeling about the problem on the mass level as well as by individuals. Emotional and psychological disturbances are probably not exceptionally high, yet from three to seven of every 100 users are alcoholics, Dr. Bacon said.

Among American Mormons, the social function of drinking is officially stated to be nonexistent and if it does occur, it is held to be disruptive, deteriorat-

(Continued on Page 26)

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Alcoholism Influenced by Social Background

(Continued from Page 22)

ing, and disgusting. Drinking can be considered only as a deviation from the group. Among those who do drink, the rules and procedures are borrowed from other cultural groups. The incidence of alcoholism among the whole group is very low, but the incidence among those who do drink at all is very high.

In a primitive South American society, drinking is so much a part of the life and its social function so well understood, members would have difficulty explaining it, just as Americans would in attempting to explain the social function of eating.

The custom is learned from childhood and is almost inextricably entwined with major ways of life and social institutions. Apparently everyone drinks, and drinking to the point of intoxication is a common practice. However, alcoholism is unknown. In fact, the language has no word for such a condition.

Considered sociologically, alcoholism is a "behavior phenomenon" and must be described in terms of specific behaviors of the alcoholic and the way they differ from the "normal" behavior of the nonalcoholic members of the group, Dr. Bacon said.

(Continued on Page 30)

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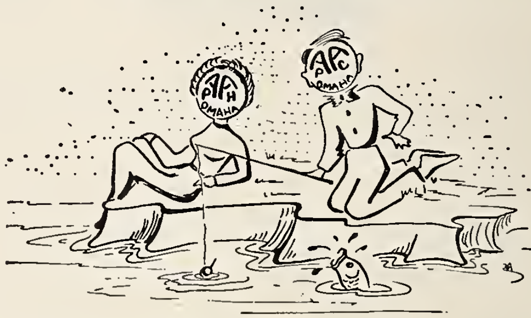

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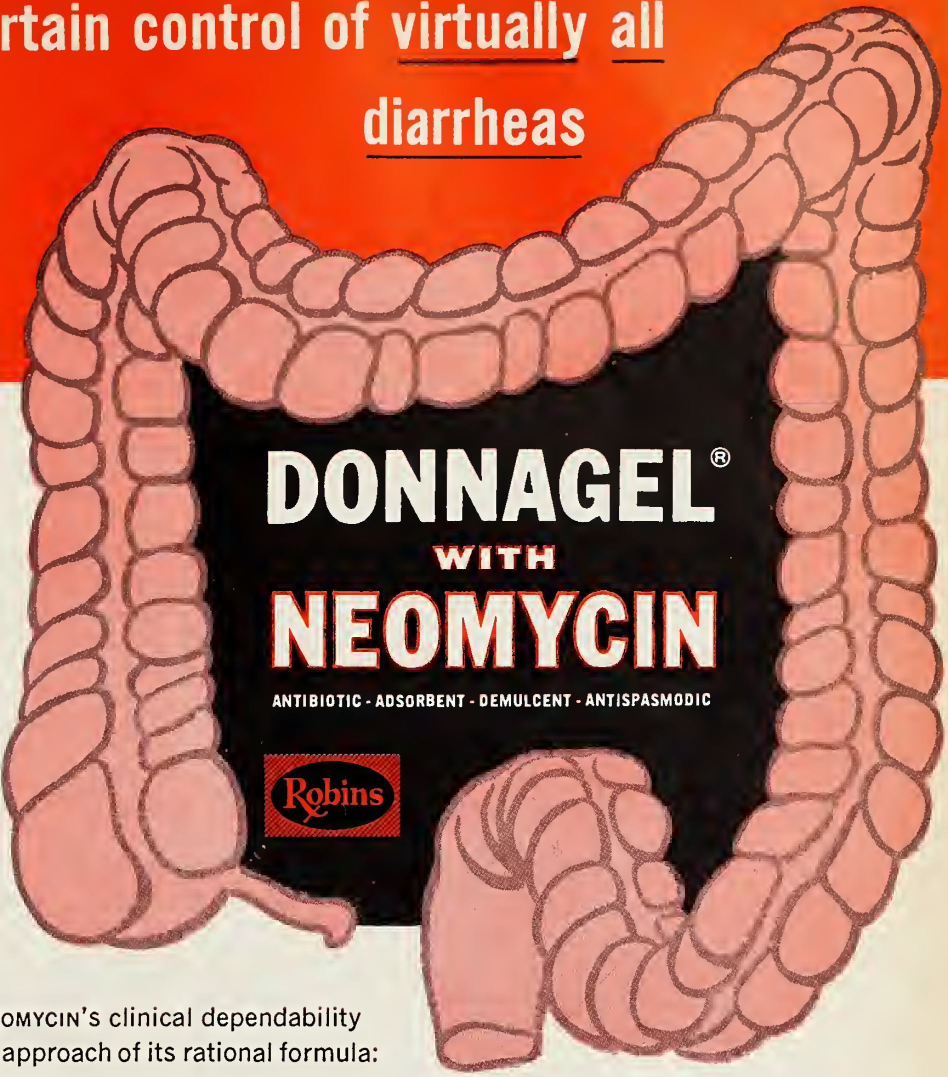

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Alcoholism Influenced by Social Background

(Continued from Page 26)

Thus, in treating an alcoholic, it helps to understand the society and its impact upon the patient and his emotions.

He also noted that the sociological approach to alcoholism may provide answers which cannot be found by the physiological, psychological, and pharmacological approaches alone, such as the reason for the differences in the alcoholism rates among the different social and cultural groups. In addition, it may help explain the emergence, form, and extent of the disease in the individual.

Swimmers Should Have Ear Wax Removed

Wax in a swimmer's ears—particularly in only one ear—may lead to serious or even dangerous consequences, a Philadelphia otolaryngologist recently stated.

Dr. Albert P. Selzer said that dizziness sometimes occurs when a person swims in cold water which enters his ears and causes abnormal activity in the ears' labyrinths where the sense of equilibrium is controlled.

The dizziness may lead to an inability to tell the position of the body, panic, or even drowning, he

(Continued on Page 34)

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Swimmers Should Have Ear Wax Removed

(Continued from Page 30)

said in a recent issue of the *Archives of Otolaryngology*, published by the American Medical Association.

Dizziness is especially likely to occur when only one ear is clogged with wax, he said. Cold water cannot reach that ear's labyrinth, but does reach the labyrinth of the unclogged ear. This sets up two different unbalanced reactions and produces dizziness and inability to tell body position.

In a person with wax in both ears or in neither ear, the labyrinths' reactions to cold water are the same and there is no dizziness.

Dr. Selzer pointed out that dizziness resulting from wax in only one ear is not confined to swimmers. It may also occur when cold air reaches the labyrinth of only one ear.

Dr. Selzer is assistant professor of otolaryngology at the University of Pennsylvania Graduate School of Medicine.

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PAGE 22

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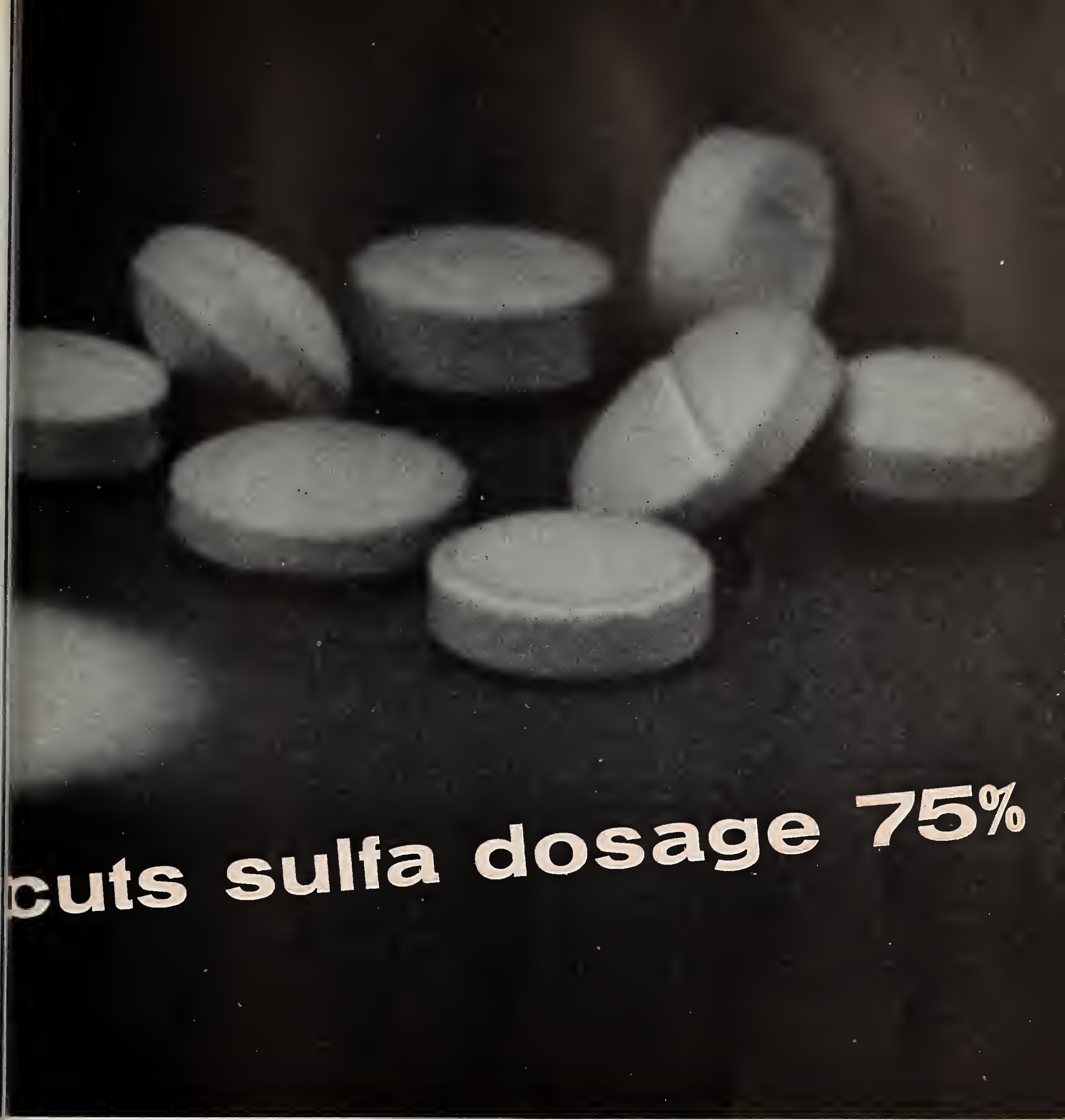

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(1) Boger, W. P.; Strickland, C. S. and Gylfe, J. M.: Antibiot. Med. & Clin. Ther. 3:378 (Nov.) 1956.

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Relation of Hypertension and Salt

A recent study of more than 1,000 adults has confirmed earlier findings that the amount of salt eaten is probably a "primary factor" in the development of one type of high blood pressure.

Dr. Lewis K. Dahl and Robert A. Love, Upton, N. Y., reported the new study on the relationship of sodium chloride to essential hypertension in a recent issue of the *Journal of the American Medical Association.*

Among 1,346 employees of the Brookhaven National Laboratory, they found that persons with low-salt intake had "significantly less" hypertension and those with high intake "significantly more" hypertension than would be expected by chance.

Classified according to sodium chloride intake, there were 135 persons with low intake; 630 with average intake, and 581 with high intake.

The distribution of the 105 persons with hypertension was one in the low-intake group, 43 in the average-intake group, and 61 in the high-intake group.

The probability of such a distribution occurring by chance is less than one in a thousand, they said.

The incidence of hypertension among non-overweight persons with high-salt intake was several

(Continued on Page 42)

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Relation of Hypertension and Salt

(Continued from Page 38)

times that among similar individuals on a low-salt diet. It was most prevalent among persons who were overweight and consuming large quantities of salt.

Although it has been suggested that persons with hypertension have an increased appetite for salt, the doctors said that their patients who have been placed on low-salt diets after always eating large quantities of salt have not developed cravings for it.

It is known that overweight persons suffer from hypertension more commonly than do non-overweight individuals.

Synthetic Drug Equals Codeine's Effect

A new synthetic drug has been found to be just as effective a pain-reliever as codeine, but without many of codeine's undesirable side effects, an Indianapolis physician reported recently.

The new drug is propoxyphene hydrochloride. Its development sprang from efforts to make the United States independent of foreign supplies of opium, from which codeine is made.

Dr. Charles M. Gruber Jr., the Lilly Laboratory for Clinical Research, Indianapolis General Hospital, reported in a recent issue of the *Journal of the*

(Continued on Page 50)

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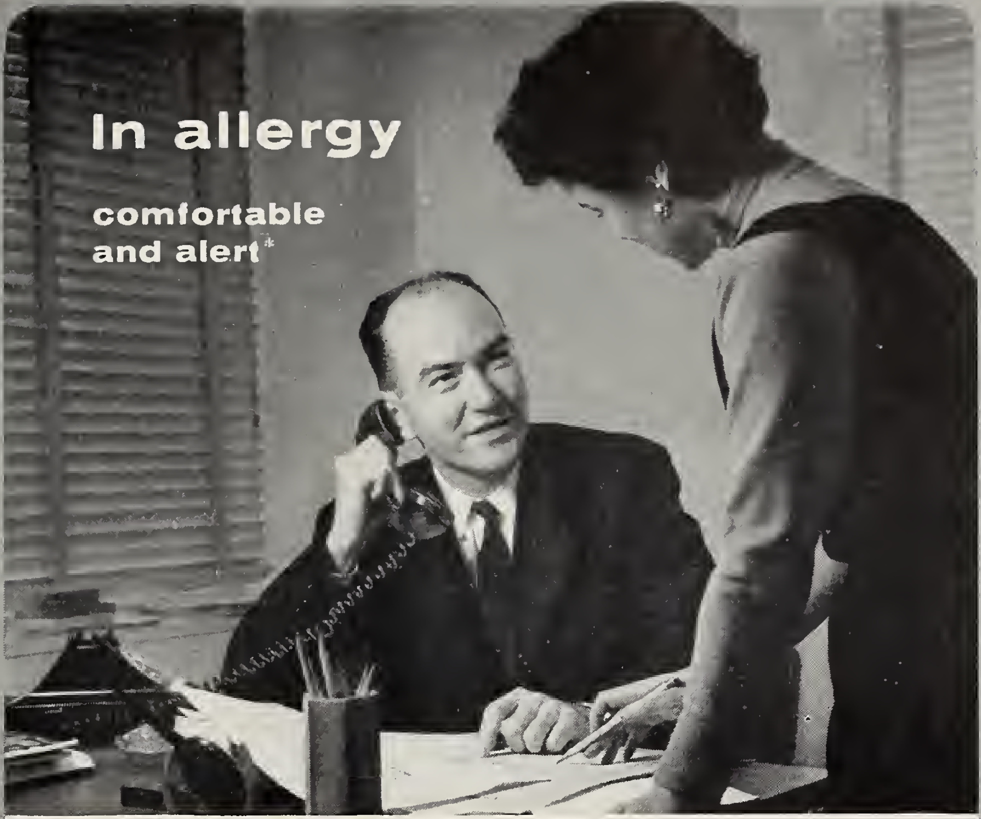

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(Continued from Page 22)

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LABORATORY AND X-RAY TECHNICIAN—Male, 35, married, California license, fifteen years in laboratory field, desires position in clinic with group of doctors. Will set up Laboratory and X-Ray Department, if necessary. Familiar with all phases of laboratory procedure, EKG, BMR equipment and operate 200 MA X-Ray machine. Box 93,575, California Medicine.

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WANTED TO BUY: Good Psychiatric Practice in the East Bay. Box 93,545, California Medicine.

(Continued in Back Advertising Section Page 74)

Patients Return to Work After Heart Surgery

People who undergo serious and complicated heart surgery can and do return to work, a recent Massachusetts survey has shown.

The study, reported in a recent issue of the *Journal of the American Medical Association,* was made by the Massachusetts Division of Vocational Rehabilitation.

Earlier studies have shown that state rehabilitation agencies are helping very few individuals with heart diseases and that many employers are loathe to hire persons with cardiac ailments.

The Massachusetts division has shown a "pioneer spirit" in helping cardiac patients undergo the necessary corrective surgery, take vocational training, and find appropriate jobs, Dorothy A. Oates, A.B., Dr. William F. Hickey and Dr. Martin J. Bellinger said.

Of 101 patients who underwent surgery between April 24, 1952, and December 31, 1955, 74 are at work and 15 are expected to go to work soon. Ten patients died and two were not helped by surgery.

Eighty-eight of the patients had some form of rheumatic heart disease, 12 had congenital defects and two had other types of heart disease. The group included 71 women and 30 men, ranging in age from 18 to 60 years.

The operations were all performed in Boston hospitals, and were financed by individual insurance or the Massachusetts division. The average cost per case to the division for physical restoration was $392.53.

The authors noted that it is estimated that for every dollar spent by vocational rehabilitation agencies, $10 is returned in taxes to the government by the person during his working life.

They also pointed out that financial help is very important to these persons since it contributes to the patients' security and family stability. "When financial insecurity is added to all the other difficulties of this type of illness, all problems are intensified," the authors said.

Of the 74 persons who are rehabilitated, 37 are homemakers and 37 are wage earners who travel daily to their jobs outside their homes. Of the 37 who are employed, 26 returned to the jobs held before surgery. Their jobs range from potato chip packer to governess to bus driver.

The number of months between operation and return to work ranged from 1 to 22, with five as the median number. Forty-six of the group who have gone to work did so less than six months after surgery.

"Despite the general impression that employment of cardiac patients presents serious problems in rehabilitation, heart disease is not an insurmountable obstacle to employment," the authors concluded. They added that more state rehabilitation agencies should undertake to help cardiac patients.

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CHLOROMYCETIN is a potent therapeutic agent and, because certain blood dyscrasias have been associated with its administration, it should not be used indiscriminately or for minor infections. Furthermore, as with certain other drugs, adequate blood studies should be made when the patient requires prolonged or intermittent therapy.

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Synthetic Drug Equals Codeine's Effect

(Continued from Page 42)

American Medical Association on 101 patients with chronic pain-producing diseases who were given either codeine or propoxyphene.

In equal doses the two drugs were equally effective in reducing the discomfort of the patients, he said. Propoxyphene did not produce as many gastrointestinal side effects as did codeine. Both drugs infrequently caused central nervous system side effects.

Patients did not develop a tolerance to propoxyphene and therefore did not need larger doses to maintain the same pain-relieving effect, as sometimes happens with codeine, he said.

Dr. Gruber noted that doctors in almost all fields of medicine prescribe codeine. Therefore, the advent of a drug with a potency equal to codeine but without its undesirable properties is of general and scientific interest.

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page 46

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Volume 87 AUGUST 1957 Number 2

Peripheral Arteriosclerosis

Arterial Grafting Procedures—Indications and Results

EDWIN J. WYLIE, ***M.D.,*** **JOSEPH S. McGUINNESS,** ***M.D.,***
and FREDERICK M. BINKLEY, ***M.D.,*** **San Francisco**

• In 32 cases aneurysms of the aorta and peripheral arteries were resected and replaced by grafts. The results from the use of homografts in 18 cases were more satisfactory than with the use of Ivalon in 14 cases. The abdominal aorta was the most frequent location of aneurysms.

The current mortality rate of 5.5 per cent for resection of unruptured abdominal aneurysms indicates that resection and grafting are an effective means of reducing the high mortality of untreated aneurysms. Five ruptured aneurysms were excised, with a mortality rate of 40 per cent. The uniformly fatal outcome of untreated ruptured abdominal aneurysms makes it obligatory for the surgeon to operate immediately after the diagnosis is first made.

PART I*

Arteriosclerotic Aneurysms

ARTERIAL GRAFTING PROCEDURES are being done with increasing frequency in the treatment of the two major complications of peripheral arteriosclerosis: Arterial obstruction and aneurysm. The numerous reports describing the means of sterilization and preservation of arterial homografts indicate that arteries may be safely removed at autopsy and preserved for indefinite periods by using methods available to most surgeons. The techniques employed in the use of homografts are familiar to those experienced in vascular surgery. Clinical data have not as yet accumulated in sufficient volume, however, to establish an undisputed listing of indications for the use of arterial grafts in peripheral arteriosclerotic vascular disease. It is the purpose of this paper to describe the indications for and the results following arterial grafting operations in a series of 71 patients operated upon on the Vascular Surgery Service of the University of California School of Medicine.

A major impetus to the use of the surgical approach in the management of aneurysms of the aorta was supplied by the report of Estes[1] concerning the natural history of untreated aneurysms of the abdominal aorta. Half of the patients followed by him were dead within three years of the date of the original diagnosis. Sixty-three per cent of the deaths were due to rupture of the aneurysm. With respect to peripheral arteriosclerotic aneurysms distal to the thoracic and abdominal arteries, the indication for surgical excision or grafting is the high incidence of

---

*Part II will be published in a later issue.

From the Department of Surgery, University of California School of Medicine, San Francisco 22.

Presented before the Section on General Surgery at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

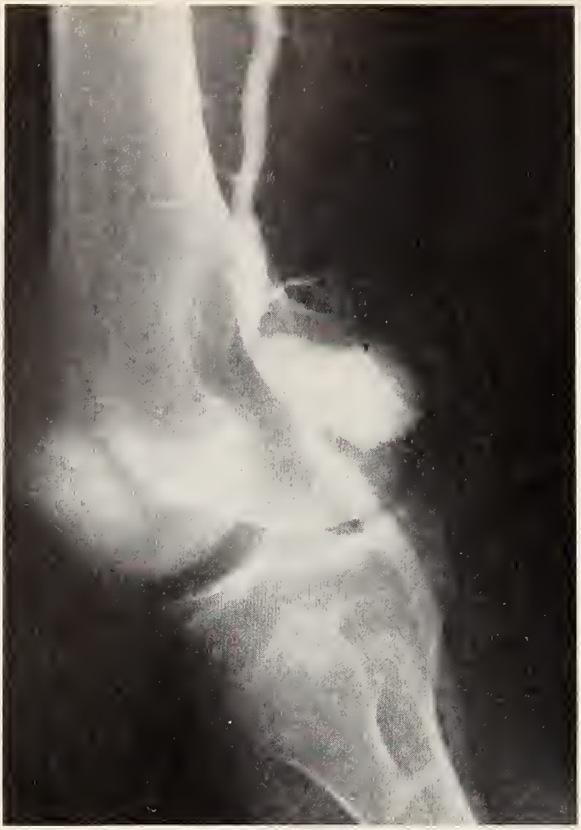

Figure 1.—Arteriosclerotic aneurysm of popliteal artery. Note partial thrombosis of the aneurysm with beginning encroachment of the lumen of the artery. A two-year follow-up shows continued patency of a homograft interpolated after resection of the aneurysm.

intraluminal thrombosis within the aneurysm, which is frequently followed by loss of viability of the involved extremity.

The decision to use surgical therapy for either aortic or peripheral aneurysms can be made properly only by evaluation of the results of any given surgical procedure. At present, arterial aneurysms due to arteriosclerosis appear to be treated most satisfactorily by resection of the dilated arterial segment and replacement by an arterial substitute. The high recurrence rate following former methods of surgical management (that is, "wiring," or wrapping with irritant membranes) has led to the almost unanimous adoption of resection and replacement methods. In addition to arterial homografts, a variety of synthetic materials have been employed as arterial substitutes. Although current reports indicate that some types of synthetic grafts appear to function as well as arterial homografts, long-term observations will be necessary for a final evaluation.

The authors' experience with grafting operations following resection of aneurysms is based on a series of 32 grafting procedures. In 28 cases the aneurysms were located in the abdominal aorta, and one each occurred in the aortic arch, the popliteal artery, the subclavian artery and the femoral artery. In 14 of the 28 cases of abdominal aneurysms the resected segments were replaced by synthetic bifurcation prostheses of polyvinyl sponge (Ivalon). In all other cases, homografts were used.

The homografts in the three peripheral arteries and in the aortic arch had functioned satisfactorily for periods up to 20 months at the time of this report. Of the 28 aneurysms of the abdominal aorta, 23 were resected in the unruptured state. There were three operative deaths among the first five patients operated upon. There has been one death in the most recent group of 18 operations. The first two deaths were due to combined renal and adrenal gland failure during the immediate postoperative period. The third death was the result of thrombosis of an Ivalon graft, causing gangrene of the lower extremities, and the last death was due to coronary thrombosis on the third postoperative day. The 5.5 per cent mortality rate in the last 18 operations for resection of abdominal aortic aneurysms is in the same percentage range as statistics from other clinics and is, we believe, a reasonably accurate reflection of the anticipated mortality rate for this operation.

In five patients the aortic aneurysm was resected after the rupture occurred; three of these patients survived. Factors common to all five cases indicate that a high mortality rate may be anticipated when a ruptured aneurysm is resected. All five patients were in shock at the time of operation as the result of massive loss of blood. In each case liquid and clotted blood obscured the proximal and distal vessels and made controlled resection unusually difficult. The interval between the time of initial diagnosis and operation varied from ten hours to five days. The universally fatal outcome of untreated ruptured aneurysms makes it obligatory for the surgeon to proceed with resection, even though the anticipated mortality is higher than that of elective resection.

Two additional observations were judged particularly significant in the series of ruptured aneurysms. In four of the cases the initial period of pain and hypotension lasted for only a few hours and was followed by relief of symptoms and restoration of normal blood pressure. After an interval varying from three hours to four days, each patient showed signs of renewed and uncontrollable bleeding, at which time an operation was performed. A fifth patient, whom we saw shortly after the onset of symptoms, was in better general condition. The operation was done with greater technical ease, since bleeding and edema did not obscure the normal landmarks. These observations suggest that, although after the onset of rupture there may be a short interval of cessation of bleeding and apparent clinical stability, it is imperative to operate immediately

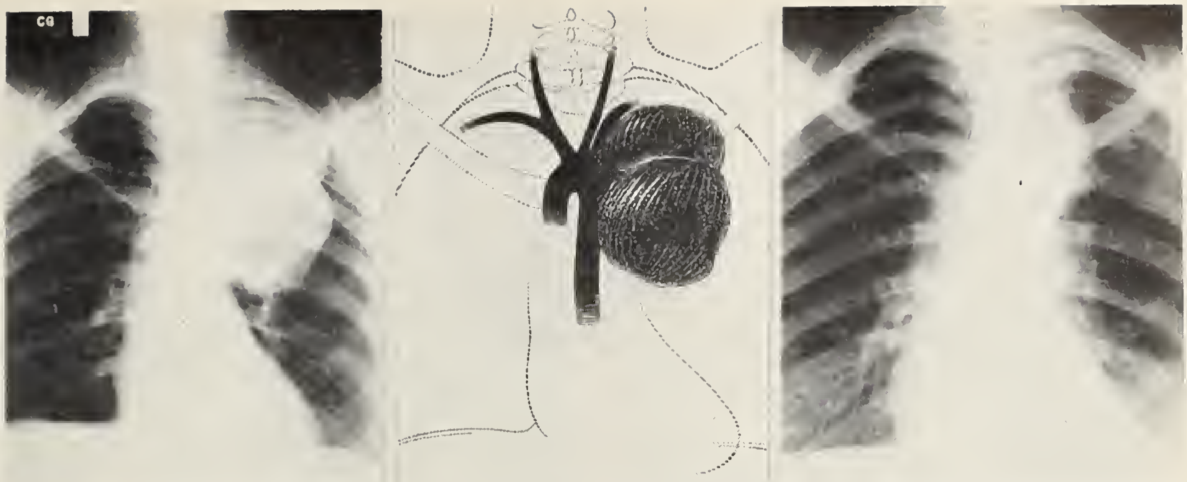

Figure 2.—Chest x-ray *(left)* showing a large aneurysm of the distal aortic arch *(center)*. Resection of the involved aortic segment under hypothermia and replacement by an aortic homograft was successfully accomplished *(right)*.

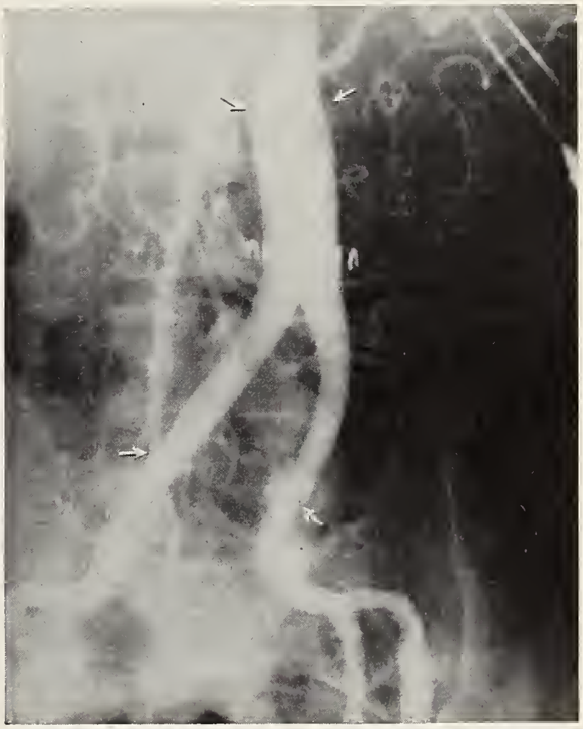

Figure 3.—Postoperative aortogram following resection of an aneurysm of the abdominal aorta and replacement by an Ivalon bifurcation graft. Arrows indicate the sites of anastomoses. The ring of silver clips on the graft is for the purpose of following changes in the subsequent size of the graft by serial x-rays of the abdomen.

after the diagnosis of a ruptured aneurysm is first made.

The other observation relates to the absence of premonitory symptoms before rupture of the aneurysm. One patient described vague and throbbing abdominal discomfort for a period of one year. The other four patients denied any symptoms that might have suggested the presence of an aneurysm. The first significant symptom in each patient was that of the rupture itself. This observation is in accord with that of Estes, who found no significant correlation between the presence of symptoms and the likelihood of rupture. It is our opinion that the still widespread policy of deferring operation upon patients with asymptomatic aneurysms is hazardous.

The lack of availability of aortic homografts in the first part of this series led to the investigation of the suitability of compressed polyvinyl sponge (Ivalon) as an arterial substitute. Bifurcation grafts of Ivalon were fashioned about a steel mold into the appropriate size and shape. The ease of construction, the similarity to normal arteries in elasticity and suturing properties, and the previous experimental evidence that Ivalon becomes fixed, supported and infiltrated by host tissue suggested that Ivalon would be satisfactory for aortic replacement.[2-3] Fourteen Ivalon aortic grafts were implanted. All five of the deaths in the series of ruptured and unruptured aneurysms fall into this group. Only one, the previously described death that followed thrombosis of the graft, is believed attributable to the nature of the graft. In one patient thrombosis of one iliac arm of a bifurcation graft developed a year after operation. During a second operation to by-pass the occluded segment, aneurysmal dilatation of the graft was observed. Two of the nine survivors died from unrelated carcinoma 11 and 13 months after operation, respectively. At autopsy, aneurysmal dilatation in the region of the bifurcation was observed in both cases. In addition, the inner walls of the grafts were lined with unattached thrombi. There was no evidence of cellular infiltration by host tissues. Hence, four of the fourteen implanted Ivalon prostheses must be considered as graft failures. There has been no evidence of thrombosis or aneurysm in the 18 homografts used for aortic replacements. This has reinforced the authors' belief that arterial homografts are the preferable arterial substitute following resection of the aneurysm.

The contraindications to elective excisional and replacement therapy of arteriosclerotic aneurysms are not clearly definable. The operative risk is slight for resection of aneurysms peripheral to the abdomen or thorax, because of the relatively minor operative trauma and shorter duration of anesthesia. For this reason there appear to be very few significant contraindications to resection of these more distal aneurysms.

Aneurysms of the thoracic aorta have been increasingly subject to surgical treatment. The use of hypothermia and the temporary by-passing of blood about the operative area have contributed to the occasional dramatic results that have been reported. The gross extent of most aneurysms of the thoracic aorta, the impairment of blood flow to vital areas during and after resection, and the technical difficulties encountered at operation still make resection of all but the most favorably situated aneurysms of the thoracic aorta unduly hazardous, in the authors' opinion. The successful result in the one case in this series took place in a patient who had a large fusiform aneurysm of the distal aortic arch. Temporary aortic occlusion with the aid of hypothermia made possible resection of the aneurysmal segment of the arch, and replacement with an aortic homograft. A futile attempt was made to resect another aneurysm that involved the entire aortic arch. Six additional cases were considered to be inoperable after x-ray studies of the chest showed that there was involvement of either the entire aortic arch, including the ascending aorta, or the full length of the descending aorta. The high mortality rates reported by surgeons who have undertaken to remove aneurysms of this extent still place such operations in the field of experimental surgery. It seems apparent that the inoperability of most thoracic aneurysms is based largely upon technical considerations.

The opposite situation prevails with most aneurysms of the abdominal aorta, in which dilatation usually begins distal to the origin of the renal arteries. In the 28 aneurysms in this series, a 2 cm. to 4 cm. segment of an essentially normal-sized aorta was available distal to the renal arteries and proximal to the aneurysm, for a graft anastomosis after resection of the aneurysm. (Although during physical examination aneurysms of the abdominal aorta are usually palpated in the upper abdomen, it is to be remembered that the renal arteries arise at the level of the xiphoid process of the sternum.) Blood flow to the iliac arteries was interrupted in a few operations for as long as an hour and a half without deleterious effect on the lower extremities.

It is apparent from the foregoing comments that the essential contraindications to elective resections of abdominal aneurysms are largely medical in nature. During the course of this investigation, eight patients with aneurysms of the abdominal aorta were considered unsuitable for operation on medical grounds. Advanced cerebrovascular or arteriosclerotic heart disease was present in each case. Although contraindications to operation may be difficult to define precisely, it is reasonable to assume that if the mortality rate of a concurrent disease will nullify the salvage rate of elective resection of the aneurysm in any given case, operation is contraindicated.

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Emotional Problems in Children

The Uses of Drugs in Therapeutic Management

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• Emotional disturbances in children may be due to an anxiety state, to obsessive-compulsive neurosis, to schizophrenia or to a brain injury causing a behavior disorder. Children in an anxiety state have difficulty in school because anxiety interferes with concentration, impairs memory and makes decisions difficult. Consequently, these children often fear school and express their anxiety by behavior disturbances which alienate them from parents and teachers.

There are a number of chemotherapeutic agents physicians can use as a part of the treatment of emotionally disturbed children. Phenobarbital is valuable for short-term therapy for the anxious child. Meprobamate also may be prescribed for anxiety reactions. It is of limited value for the hyperkinetic and obsessive-compulsive child and of no value in the schizophrenic child. Atarax (hydroxyzine dihydrochloride) is beneficial for the neurotic and hyperkinetic brain-injured child. Children with severe anxiety reactions and schizophrenic disorders respond best to chlorpromazine or reserpine.

It must be emphasized that drug therapy is a part of the total therapeutic attack on the emotional problems of children.

PARENTS FREQUENTLY CONSULT a physician because their child is having either scholastic or behavior difficulties. Children of this sort challenge the diagnostic and therapeutic acumen of the physician who must make a differential diagnosis and select an effective treatment. This is particularly true in this day of pharmacotherapy when parents, their hopes stimulated by the things they read in publications of general circulation, expect the family physician to treat their child with a tablet.

Emotional disturbances in children may be due to a functional psychic disorder such as an anxiety state or schizophrenia, or to a brain injury causing a behavior disorder. These conditions may be manifested by either scholastic or behavior disorders or both. It is these secondary effects of emotional disturbance which initially attract attention to the child and confound parents and teachers who overlook the primary disorder and hasten to correct the symptoms. Consequently, their well-intentioned efforts are misdirected and fail to alleviate the problem. This causes the adults to hold the child responsible for his difficulties and to label him "bad," "stubborn," or "unmanageable." Hence most emotionally disturbed children are not taken to a physician until their illness has persisted for months.

Every disturbed child must be thoroughly studied and an accurate diagnosis established before treatment is begun. It is incumbent upon the physician to take a careful history, to observe the child closely, to do a physical and neurological examination, and to secure special diagnostic tests when indicated. It is imprudent to casually assume that a child's anxiety or aberrant behavior is temporary, that he "will outgrow it," or that it is the outcome of parental ineptness or emotional instability. Such attitudes are not conducive to careful diagnostic screening or judicious treatment.

Since therapeutic failures and even an aggravation of deviant behavior are invited by a physician who treats a child without knowledge of the nature of his disorder or the pharmacologic action of the compound he prescribes, a brief review of some of these emotional disorders and the symptoms characteristic of them may be helpful.

The most common emotional disturbance in children is an anxiety state. This may be a transient symptom reflecting a temporary reaction to a stressful situation, or it may be a persistent manifestation of a serious underlying disorder. Regardless of its duration the symptom of anxiety is always an impediment to efficient intellectual function and smooth interpersonal relations.

The scholastic attainments of an anxious child are seldom proportionate to his basic capabilities because anxiety interferes with concentration, impairs memory and makes decisions difficult. In addition, an anxious child becomes preoccupied with his feelings and it is difficult for him to participate or maintain interest in things outside of himself. His ability to study, therefore, is impaired.

The inability to perform well scholastically causes an anxious child to detest and fear school. Sometimes his school phobia becomes so overwhelming he refuses to attend classes or expresses his anxiety by behavior disturbances which alienate him from his parents and teachers who put pressure upon him to

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Read at the Symposium on Emotional Problems of Children, April 10, 1957, Los Angeles.

Submitted May 1, 1957.

conform to conventional modes of behavior. This intensifies his anxiety and a vicious circle ensues.

Many anxious children are reared in an unstable environment, often by parents who are neurotic or are disabled by a character disorder. The history of such children usually includes feeding problems, nightmares, enuresis or disturbed bowel function. Except for some evidence of increased activity of the sympathetic nervous system, children with an anxiety reaction are physically and neurologically sound. When examined, they may be reticent at first, but cooperative. Unless they are severely anxious, it is uncommon for them to leave the office not "friends" with the physician.

Not to be confused with an anxiety reaction is an obsessive-compulsive neurosis which occurs in children over seven years old. In the cases of such children there is frequently a family history of mental illness, particularly of schizophrenia. Usually their obsessive thinking, phobias and compulsive rituals have existed for months or years before medical help is sought, for most parents make light of these symptoms until they have persisted without sign of abating. Because of their tendency to introversion these children have difficulty relating to others, including the examining physician. They evade direct discussion of their symptoms. Hence they appear uncooperative and examination of them taxes the physician's ingenuity. Many attempt to conceal their compulsions; others make no effort to do so. At times their compulsive tics and other motor movements must be distinguished from myoclonic seizures. Usually no other abnormalities are noted on physical and neurological examination.

A less frequent (but more prevalent than formerly supposed) cause of emotional disturbance in children is schizophrenia. Often in the family of a child with this illness there is a history of schizophrenia. In children this disorder develops so insidiously that the parents usually cannot describe the clinical symptoms as easily as they can the symptoms of a neurosis or the hyperkinetic behavior of a brain-injured child. Usually the physician must elicit the characteristic symptoms of schizophrenia by questioning the parents who in retrospect can see each symptom as it is mentioned. These are: Seclusiveness, irritability when the seclusiveness is disturbed, excessive daydreaming, bizarre behavior, diminution of interests or failure to be attracted by objects and activities which normally entice children of similar age and intelligence, regressive personal interests or the voluntary selection of and participation in amusements and occupations which usually attract younger children, sensitivity to comment and criticism and physical inactivity or overactivity.

It is rare to find a physical or neurological abnormality in a schizophrenic child. What is more obvious and more diagnostic is the behavior of the child in the physician's office. Withdrawal, evasiveness, suspiciousness, inability to relate to the physician, monosyllabic responses, bizarre and unusual phobias, lack of appropriate emotional response—these are symptoms which should cause a physician to suspect schizophrenia.

Anxiety may or may not be a prominent feature of childhood schizophrenia. When present it has the same detrimental effect on intellectual function and interpersonal relations as was described previously. Anxiety in a schizophrenic child may cause unusual irritability, temper tantrums and aggressive outbursts directed toward others. Even without anxiety, schizophrenia causes scholastic and behavior difficulties. At home a child with schizophrenia gradually isolates himself from family and friends and retreats into a world of fantasy. In school his scholastic achievement declines as he becomes more preoccupied with abstract ideas and less interested in the world of reality.

In children who have had trauma at birth, injury to the brain in early life or a severe illness with cerebral symptoms, hyperkinetic behavior may develop because of brain injury. The parents may note that from infancy they have been hyperactive, impulsive, destructive, aggressive and difficult to manage. Their teachers report poor performance in the basic school skills—reading, spelling and arithmetic. Their hyperkinetic behavior, negativism, and other forms of antisocial behavior make them a disrupting factor in the classroom. Intellectually they may be retarded or they may have normal or above average intelligence. Upon physical and neurological examination there may be no abnormalities noted, or there may be minor to severe neurological abnormalities. Quite apparent are restlessness, short attention span, easy distractibility and tendency to perseverate.

Whenever possible it is advisable to obtain for such children an electroencephalogram and a test with the Wechsler Intelligence Scale for Children. Most children of this kind have abnormal electroencephalograms with a predominance of slow wave activity. As scored by the Wechsler test, the majority have a performance intelligence quotient significantly below their verbal intelligence quotient and an impairment of their visual motor coordination. Such findings help to explain the psychopathologic nature of the disorder and should make parent and physician more understanding of these unfortunate children.

PHARMACOLOGIC MANAGEMENT

The pharmacologic management of emotional disorders of children as out-patients is possible. Necessary for success are a physician skilled in pharmacotherapy, a realistic therapeutic goal and a most careful selection of children for treatment. The attitude of the physician is a factor, for the physician conveys his attitudes to the child and the parents. A kind, sympathetic physician who unites firmness with compassion and optimism is much more likely to achieve success than another physician using the same drugs in proper doses with a negative attitude.

Before prescribing a drug the physician must impress upon the parents the absolute necessity of their assuming responsibility for making sure that the child gets the medication exactly as prescribed. Often failures with drugs or improvement less than expected is attributable to parental laxity in this respect. Parents must be forewarned not to be alarmed by side effects that are due to the physiologic action of the drug. On the other hand, to insure early detection of serious side reactions, parents also must be instructed to report any unusual physical or emotional change in the child. They should be admonished not to discontinue medication in either case without first consulting the physician.

Since there may be wide differences in the doses of a drug required to restore emotional stability, a physician must pay attention to individual susceptibility to a compound and not hesitate to prescribe increasing doses until the therapeutic level is attained or toxicity intervenes. Equally important is therapeutic persistence. It is unrealistic optimism to expect to reverse chronic disorders with a short course of drug therapy. Many of the successes with drug therapy must be attributed to a physician's persistence in the face of difficulties and willingness to take legitimate risks. There is no serious danger with prolonged administration of the drugs to be discussed, provided the child is properly supervised. Parents must be taught this and be advised that they should not expect the child to show dramatic improvement or be completely relieved of all symptoms by drugs alone. They should know and accept that the goal of therapy is not necessarily cure but symptomatic relief which removes their child from one stage of disability to a lesser one. This instruction of parents is worth all the effort required of the physician, for properly indoctrinated parents are understanding and cooperative parents—an asset to the treatment of the patient.

Physicians in general practice have many pharmacologic agents they may prescribe for emotional and behavior disturbances of children. It is hardly possible or practical for them to have a thorough working knowledge of all these drugs. Hence, they should strive to become thoroughly acquainted with a few which they can use advantageously and with the least risk.

Phenobarbital was the cornerstone of pharmacotherapy for many of the disorders discussed in this presentation. It still is a valuable compound for the short-term treatment of anxiety reactions. The most serious drawback to using it is the reduction of mental acuity it causes—a most undesirable effect in a child who goes to school. This can be counteracted, without stimulating, by small doses of Ritalin® (methyl-phenylacetate hydrochloride). Phenobarbital is not beneficial to and often enhances the hyperkinetic behavior of a brain-injured child.

Meprobamate may be prescribed for anxiety reactions. It is of little value for a hyperkinetic child or an obsessive-compulsive child and of no value in the treatment of a schizophrenic child. This drug is not an innocuous compound and should not be prescribed indiscriminately. Children receiving it should be carefully supervised. In clinical use meprobamate is not much better than phenobarbital. It causes drowsiness in some children but, as with phenobarbital, this can be counteracted by Ritalin.

Atarax® (hydroxyzine dihydrochloride) may be of definite value to neurotic children and hyperkinetic brain-injured children. This drug lessens tension, relieves symptoms of disturbed autonomic function and calms hyperkinetic behavior. For these purposes larger doses than those recommended for children must be used. Few children are benefited by less than 75 to 100 mg. daily. Some children, especially hyperkinetic children, may require 200 mg. to 300 mg. daily. Children under 6 years of age should be given syrup of Atarax in doses of 50 mg. a day to begin with. For older children administration should be started at one 25 mg. tablet two or three times daily and the dose increased until the therapeutic level is reached. Thereafter, the dose should be decreased gradually. Although studies of prolonged administration of Atarax are incomplete, this drug has been given to some children for six months or more without obvious deleterious effects.

Atarax also may be used advantageously to reduce anxiety in children who become distressed when faced with unpleasant, fear-provoking situations such as diagnostic tests in the hospital, painful treatments, dental work and minor surgical operations. Single or repeated doses of 25 mg. orally or intramuscularly a few hours before such events usually suffice to alleviate anxiety and get the child's cooperation.

Atarax has not had a sufficient trial in schizophrenic children to assess its value for this disorder. Limited studies of this drug in ambulatory schizophrenic children indicate that doses in excess of 200 mg. daily mitigate anxiety to some degree. Its therapeutic effectiveness, however, cannot be compared to that of Thorazine® (chlorpromazine) or Serpasil® (reserpine). Hence, until more definitive studies are completed, a physician should not prescribe Atarax for schizophrenic children.

Thus far Atarax has been relatively free of side effects. This enhances its value for school children, who seldom experience drowsiness or impairment of intellectual function with therapeutic doses. Experimentally, children have tolerated well doses in excess of the average therapeutic dose. This drug does not potentiate barbiturates and may be used in combination with anticonvulsants when an epileptic child develops an emotional disorder.

Thorazine and Serpasil are potent tranquilizers especially suitable for severe anxiety reactions and schizophrenic disorders. They have not been used successfully for the treatment of hyperkinetic brain-injured children, except to modify anxiety. At times they have aggravated the hyperkinesis of these children. Likewise they must be used skillfully when prescribed for an obsessive-compulsive child. Many such children have developed feelings of unreality and depersonalization when treated with Thorazine or Serpasil. These undesirable psychological reactions have increased anxiety rather than relieved it, necessitating discontinuance of the drug.

Children with an anxiety state may require from 50 to 300 mg. of Thorazine daily or 0.25 to 2 mg. of Serpasil daily. Schizophrenic children, for whom these drugs are the best available, usually require 150 to 300 mg. of Thorazine or 1 to 2 mg. of Serpasil daily. It is best to start with small doses and to increase the dose rapidly until the therapeutic level is reached or toxicity intervenes. Either of these drugs may be prescribed for long periods, especially for schizophrenic children. However, they are most effective in the first two months of treatment. Thereafter in many children a tolerance for them seems to develop, necessitating progressive increase in dosage. Even then the therapeutic effect is not much greater than that obtained initially.

Thorazine and Serpasil may cause side effects due to their physiological action or allergic reactions due to hypersensitivity to the compound. The former are not serious; the latter may be and warrant immediate discontinuing use of the drug. Both drugs frequently induce lassitude and psychomotor retardation, a hindrance to scholastic performance. This can be relieved by Ritalin. Thorazine has caused photosensitivity in many children. This is an annoying and troublesome side effect which often makes discontinuance necessary. Serpasil may cause nasal congestion and enuresis. The former may be relieved by nasal decongestants, although in some children this is not effective and use of the drug has to be stopped. Parents usually are more disturbed by drug-induced enuresis than the children and some refuse for that reason to give the drug to their child.

COMMENT

Pharmacologic agents, although they alter behavior and are of benefit in emotional disorders in children, are not cures; they do not change the basic psychopathologic condition. Ideally, the drug therapy should be a part of the total therapeutic attack on the problem. The children who respond best to drug therapy are those for whom other forms of psychological care and environmental adjustments are carried out at the same time. These factors in the treatment are much more readily dealt with by a physician who uses drug therapy, for the symptomatic relief afforded by the drugs gives him more time to concentrate on the other needs of the child. It also helps in getting the cooperation of the parents, for they are relieved of the upsetting effect of their child's symptoms and can more objectively cope with the problem.

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ADDENDUM

Regarding "Malformation of the Odontoid Process" published in the June issue of California Medicine, we should like to draw attention to a recent paper by A. Bachs, L. Barraquer-Bordas, L. Barraquer-Ferré, J. D. Canadell, and A. Modolell: "Delayed Myelopathy Following Atlanto-Axial Dislocation by Separated Odontoid Process," Brain, 78:537-553, Part IV, 1955. In it, several further relevant cases are reported.

We regret that this report had escaped us. Although very detailed, it does not cite any of our references.

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Subjective Complaints in Industrial Injuries

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• Subjective complaints that are actually disabling are ratable factors in industrial injury cases in California.

The responsibility of evaluating these complaints with fairness to the patient and employer rests with the examining physician. Full confidence in the physician's integrity minimizes the subjective complaint problem. The importance of good physician-patient relationship is not always recognized.

THE MEASUREMENT of objective disability in California has become pretty well standardized since the adoption of the standard method of measurement[2] that was worked out some years ago by a committee appointed for the purpose by the California Medical Association.* The evaluation of subjective disability, however, still presents a big problem.

A subjective symptom may be defined as, "one experienced only by the patient himself, and not amenable to physical exploration."[3] In industrial injury cases it is necessary to distinguish between a subjective *complaint* and actual subjective *disability*. In California, a subjective complaint usually is compensable when it actually limits the injured workman's ability to do his work. This applies to both temporary and permanent disability.

Many industrial injuries do not result in permanent disability and the physician's problem is limited to the determination of just when the workman can safely return to his job and when compensation for temporary disability can be stopped. Frequently it is the patient's subjective complaints that make this decision difficult. An early return to work is usually advantageous to both patient and employer. With an average industrial wage of approximately $90 a week and a maximum compensation rate of $40 a week, there is usually no pecuniary incentive for an injured person to intentionally prolong his disability. There is pecuniary incentive for the employer to wish to shorten it.

When the condition becomes permanent and static and ready for rating, the situation changes. It is then to the patient's advantage to have every consideration given to his subjective complaints. It is to the employer's advantage, of course, to have them skimmed over.

Evaluating subjective complaints is a difficult and thankless job, but someone must do it. The physician who attends an industrially injured patient or reports on the case has this responsibility. Frequently the subjective complaints are much more disabling than the objective and they cannot be ignored. For example, in back injury cases the real disability almost invariably comes from pain rather than from any measurable objective pathologic change. The fact that back pain is hard to evaluate does not make this any the less true.

The physician must be fair to both the injured workman and the employer. He must give the patient every opportunity to describe his complaints. He does not, however, have to accept them at the patient's value. In the event that the examining physician does discredit the patient's complaints, he should be very sure of his ground. He should do so only after every reasonable diagnostic means has been taken to prove or disprove the validity of them. The discovery that a patient has some of the stigmata of the neurotic does not mean that he has no disease.

The physician should not let the patient hoodwink him, for if he does, not only will an unfair burden fall on the employer, but the word is likely to go out over the grapevine that the physician is an easy mark. The proportion of dishonesty is no greater or smaller in industrial patients as a group than in any other large group.

The physician's job is truly a difficult one. No one but the patient himself knows exactly how severe his symptoms are. They are in a way his stock in trade—as yet unpriced. While this feeling on the part of the patient is usually not a conscious one, it nevertheless does frequently exist. Probably for the first time in his life the patient has had ample time to ponder his troubles. The injury in question has been one of the big events in his life. He has been under a great financial strain and he is worried about the future. He would hardly be human if he did not give his complaints their full value.

The patient usually trusts his physician professionally. On the other hand, he knows very little about professional ethics and sometimes his opinion of them is not very high. He does know that the physician has been chosen and paid for by the employer and that the physician depends on future

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*The Subcommittee for Standardization of Joint Measurements in Industrial Injury Cases, Packard Thurber, Sr., chairman.

Presented before a Joint Meeting of the Sections on General Practice and Industrial Medicine and Surgery at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

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referrals for a part of his livelihood. The patient does not know just what the financial arrangement is, but he doubts it was made solely for his benefit.

The patient has spent a great deal of time sitting in the physician's reception room talking to other industrial patients. He may have heard rumors that in the past the physician has been unfair in some of his reports. Regardless of the truth of these rumors, he may be tempted to build up his complaints in order to get recognition that he feels is rightfully his.

There is one thing that stands out as of great importance as an ingredient of fair settlement in such cases, and that is the patient's confidence in the integrity of the physician. Some physicians doing industrial work seem to inspire this confidence. Those who do, have little trouble with the subjective complaint problem. Others seem to be psychologically unfitted for work of this type and seem to feel that every patient is trying to delude them. The patients quickly sense this, and for such physicians subjective complaints become a major problem. This is especially true when the time comes for them to persuade a patient that he is able to go back to work. Most employers and carriers realize the importance of good physician-patient relationship and are willing to spend pennies now to save dollars later. Unfortunately, a few would rather save the pennies.

The physician, in his evaluation of subjective complaints, must consider a number of things, some of these are:

1. The kind of injury and the subjective complaints which can probably be expected to be present.
2. The history of treatment, especially with regard to any prolonged period of immobilization.
3. Complications, such as thrombophlebitis, allergic reactions, sympathetic reflex dystrophy, infection and traumatic arthritis.
4. Preexisting pathologic states which have been lighted up and made symptomatic by the injury.
5. Preexisting conditions or symptoms which were not made worse by the injury but which do complicate the general problem.
6. Objective findings, such as limitation of motion, atrophy, osteoporosis and traumatic arthritis.
7. Traumatic neurosis.
8. The patient himself, his age, personality and threshold of pain.

By a careful consideration of these factors a physician can usually make a fair evaluation of what the subjective disability really is.

The Detection of Fraud

In the author's experience, deliberate malingering is rare. Frequently a real malingerer is a repeater, and he may be a very clever and personable fellow. On the other hand patients sometimes, either consciously or unconsciously, tend to build up their complaints.

Many physicians have their own pet methods of detecting fraud. In this regard it is useful to keep the following points in mind:

1. The examiner knowing anatomy, knows the exact locations at which pain is likely to persist after injury of certain types. The patient usually does not know these locations.

2. The examiner may use a skin pencil and unobtrusively mark the points at which pain is complained of on pressure. Later in the examination he may check these points when the patient's attention is diverted.

3. Muscle spasm, or rather the absence of it, is often difficult to detect, especially in the back. By asking the patient to assume several positions in sequence, he may be diverted so that voluntary tension may be relaxed and true muscle spasm noted.

4. Absence of atrophy is informative. It must be remembered that atrophy does not occur overnight and that the major arm and forearm are usually larger than the minor. This is not true of the lower extremities.

5. Alleged limitation of forward bending can be rechecked with the patient sitting on the table. There is some normal variation.

6. Callus or inground grime may be informative.

7. Electromyography is sometimes useful in cases of claims of nerve injury. The findings should be interpreted by an expert.

8. Determination of major and minor. (While this hardly falls in the field of subjective complaints, it does sometimes offer a problem. In California an injury to a major upper extremity usually carries a higher rating than injury to the minor.)

(a) Most persons use the major hand for writing although some have been taught to use the right hand, even though it is the minor.

(b) Most persons throw with the major hand.

(c) Almost invariably a person will use the major hand to hold the match when striking from a paper match book.

(d) The master eye usually corresponds to the major hand. Dr. Ben Sharpton has suggested a simple method of determining the master eye. A one-inch hole is cut in the center of a sheet of paper and the patient is asked to line up the hole with some object in the room, keeping both eyes open. The examiner then covers one of the applicant's eyes. The eye that lines up with the object without changing the position of the paper is the master eye.

All these points can be observed early in the examination, before the subject of major and minor comes up.

Grip Loss

Loss of grip is not a subjective complaint, but as far as dynamometer readings are concerned, it is certainly under the applicant's control. If the examiner questions the patient's cooperation in the matter of grip, it is his duty to so state and in addition to give his opinion of what the actual grip loss is, in percent. He should also give the reasons for his opinion. Evaluations based on apparent failure of the applicant to contract his forearm muscles may be misleading. If there is no muscle-power, there can be no contractions. Grip loss may be caused by a number of factors, among them amputation, limitation of motion, nerve injury, muscle weakness and pain. Grip loss which is the result of pain is just as disabling as loss due to amputation. Kirkpatrick[5] recently published a report of a study made by a grip loss committee of which he was the chairman. The report will be very helpful to anyone treating industrial injuries.

Reporting Subjective Complaints

After the examining physician has made up his own mind as to just what subjective disability actually exists, he must report this in such a way that others can have a mental picture of the disability. If a question of returning the patient to work is to be answered, the physician should carefully consider the kind of work that the patient will have to do. If a preliminary hardening-up period is necessary, he should so state.

Frequently the patient will complain of pain in a part of the body not seemingly related to the injury. In such cases the examiner should state whether or not this pain is a result of the injury.

The simple reporting of the patient's complaints is not enough. The reporting physician should give a clear presentation of just what the patient can or cannot do. If pain in the back limits the ability to lift, then the examiner should give his opinion as to about how much the patient probably can lift. If ankle pain limits walking, the examiner should state about how far he can walk.

Such terms as *slight, moderate* and *severe,* have different meanings to different people. Mr. Eli Welch, supervisor of the Commission's Permanent Disability Rating Bureau, some time ago suggested a standardization of definitions of these terms. These have been adopted as standard by the Commission. The definitions as adopted by the Commission are as follows:[4]

1. A *severe* pain would preclude the activity precipitating the pain.
2. A *moderate* pain could be tolerated but would cause marked handicap in the activity precipitating the pain.
3. A *slight* pain could be tolerated but would cause some handicap in the performance of the activity precipitating the pain.
4. A *minimal* pain would constitute an annoyance, but causing no handicap in the performance of the particular activity, would be considered as a nonratable disability.

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Work Injury

A Second Look at the Doctor's First Report

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• Injured employees require medical care and, if disabled, compensation payments for subsistence. The law requires that the employer or insurance carrier supply these benefits promptly. In the absence of prompt and adequate information from the attending physician, these benefits are withheld. The necessary information required to process employee's claim is that called for on the standard accident report form, commonly called the "pink slip." Not to supply this minimum information may constitute a hardship on the employee. By supplying more elaborate information than that called for, the physician may be increasing his load of "paper work" immeasurably.

No physician is obligated to accept a patient for treatment under the Workmen's Compensation insurance law of California, but one who does take such a case faces responsibilities imposed by law, which include the filing of the "Doctor's First Report of Work Injury"—popularly known as the "pink slip" —within seven days. One sentence on the form reads: "Immediately after first examination, mail one copy *directly* to the Division of Labor Statistics and Research. Failure to file a report with the Division is a misdemeanor (Labor Code, Sections 6407-6413). Answer all questions fully." There are many other reasons than the desire to avoid a penalty which demand prompt transmittal of adequate information by means of the Doctor's First Report. The compensation to which the patient is entitled cannot be paid in the absence of the pink slip. Sometimes investigation of the circumstances in which injury occurred is required, and delay of the First Report will postpone this necessary step. Such a delay may cost the employer the opportunity to obtain pertinent facts, or it may retard compensation payments to the employee. Inadequate information similarly results in either a delayed decision regarding the payment of compensation or a precipitous one which may be difficult to reverse later when all the facts are accumulated.

The pink slip calls simply for identification of the employee, the employer and the insurance carrier, a brief statement of the history of the injury as stated by the patient, a medical description of the injury, what treatment has been rendered and is anticipated, how long the disability will extend and what, if any, will be the permanent effects of the injury. All this information is relevant. It serves a statistical purpose for the state, allows the insurance carrier (as required by law) to set up adequate reserves for the indicated medical care and compensation, and may serve as notice to the employer that an employee has claimed on-the-job injury.

Physicians who complain of the "red tape" involved in making these reports may be in a situation similar to that of the diabetic patient who complained of the difficulty of eating the food on his diet list as well as his regular meals. For the physician or institution whose record systems are rigidly installed to meet the needs of private practice, the pink forms do constitute an extra burden. If the system is flexible enough to allow the retained copy of the pink slip to constitute the basic record of the case, complaints on this score will be reduced.

In most cases the minimum information required by law on the pink slip will meet all the immediate needs of the case, and to elaborate on it with gratuitous information may only be a waste of effort.

Generally, the greater the number of industrial cases a physician handles the greater the ease with which he dispatches the First Reports. Many of the criticisms directed at persons involved in the administration of compensation insurance claims may be mitigated or entirely dissolved as familiarity with claims processing increases.

One cause of reluctance among physicians to treat patients under Workmen's Compensation is fear that they may be summoned for prolonged and embarrassing appearances at formal hearings. Actually 96 per cent of the claims in which there is no loss of time and 72 per cent of those in which compensation is claimed are processed without involving the Industrial Accident Commission in any way. In only about one case in six is any hearing held; and rarely, even in those cases, if the First Report is clear and complete, is the original physician required to appear. Industrial Accident Commission hearings are much less formal than court trials, as is demonstrated by the fact that physicians' reports usually are accepted without a personal appearance being required. As a matter of fact, adequate and prompt information on the pink slip

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Presented before a Joint Meeting of the Sections on General Practice and Industrial Medicine and Surgery at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

minimizes the possibility that a hearing before the Accident Commission will be necessary. Since medical care of patients under Workmen's Compensation in California is unlimited and since compensation awards may extend over many years, the payment of tens of thousands of dollars may depend on a single copy of the "Doctor's First Report of Work Injury." A physician's responsibility in this field, therefore, cannot be taken lightly. Experience has proved time after time that the first history of injury is most likely to be the true one. This emphasizes the importance of recording the employee's actual statement or an accurate synopsis of his statements at the time of his first visit.

To get an idea of the need for adequate reporting, one need only put oneself in the position of the insurance carrier that is confronted with dismayingly cryptic descriptions. (In the following examples, the number 11 is the number for report of "Accident or Exposure" on the form, and 12 is "Nature and Extent of Injury or Disease.") These examples are taken from actual reports:

11. Stooping over.
12. Traumatic bursitis right upper tibia.

and

11. Both feet hurt.
12. Depressed arches.

and

11. Foreign body left eye.
12. Bi-lateral pterygium.

and

11. Chopping wood, chip flew in mouth.
12. Peritonsillar abscess treated by tonsillectomy.

Even this short list suggests the frustrations that must beset an insurance carrier.

Some of the major failures observed in the Doctor's First Reports of Work Injury may be classified as follows:

A. Failure to describe the time and place of the injury reported by the patient. "Chopping wood" in one's own backyard may result in the same injury that would be caused by chopping wood for an employer's cook-stove, but the one is definitely not an industrial accident while the other is. "Foreign body in the left eye" is, in the case of a sawmill worker, highly suggestive of an industrial injury, but if the foreign body entered the eye at, say, 10 a.m. on Labor Day, which was the third day of a long holiday, the complexion of the claim is altered entirely. Similarly, "At street corner while catching bus" must be supplemented with the information whether it was the 7 a.m. bus on the way from home to work or the bus at 10:30 a.m. when the injured was dispatched downtown on an errand for his employer.

B. Failure to recognize that Item 11, a description of the accident or exposure, should represent, either verbatim or in essence, what the patient states and that it does not necessarily concur or harmonize with Item 12, which is the physician's medical opinion concerning, or his description of, the nature and extent of injury or disease. This can be grasped more readily if we understand that the patient's statement does not have to make sense to anyone but himself. If a paranoid employee states that "Three little red devils came in through the office window and burnt me with their pitchforks," this statement should be recorded under Item 11. This does not justify the physician in stating that the subjective paresthesias in the patient's legs are due to pitchfork burns, and yet the records too often reveal reporting of just that kind. The physician's statement should make sense to the insurance carrier, the employer, the Industrial Accident Commission and to other physicians who may later examine the patient. Experience also indicates that the physician will be more comfortable if he himself finds his reports make sense when he is confronted with them six months after he signed them and the case has fallen into dispute.

C. Failure to recognize that Item 12 does not necessarily call for a diagnosis. What is called for is a description of the symptoms and signs. If an accurate diagnosis describes the condition clearly, then it will serve a double purpose. For example, "Compound fracture at the junction of the lower and middle thirds of the right femur" is not only an accurate diagnosis but gives a reasonable picture of the condition to the layman. On the other hand, it may be a major error to write, "Sprain of right wrist" if the condition observed is a swollen, painful wrist joint, particularly in the absence of trauma. The condition should be described. The diagnosis may be supplied later when, through elimination or through subsequent history, it is established as a sprain. It might develop, however, that the affected wrist is the first site to be involved in rheumatoid arthritis. In the case of a private patient the physician frequently requires time to establish a diagnosis. He is not stampeded into making a final diagnosis prematurely. He will be wise not to allow the pink form to intimidate him into committing himself to a snap-shot diagnosis which may irrevocably dictate the course of the claim. Every case of painful back is not necessarily owing to a sprain, let alone to intervertebral disc disease. Not all headaches are necessarily caused by "brain damage" or "traumatic neurosis." If a tentative diagnosis is made it should be labeled as such, either in the same box or under "Remarks." If further laboratory tests, x-ray films or other examinations are necessary to establish or to rule out the tentative diagnosis, that fact should be stated. Such notes not only give the insurance carrier a picture of the situation but prepare him to cooperate in obtaining the additional indicated medical information.

Parenthetically, it may be good practice to insist that industrial nurses limit the notes in their records or daily logs to the patient's story and their own description of symptoms and signs. It is well that we all keep in mind the fact that they are forbidden by law either to diagnose or treat. They are trained, however, to record complaints and to describe lesions, as well as to administer first aid, and these functions lie within their professional province.

D. Failure of the physician to edit and confirm, if not to actually elicit, the history of the accident or exposure. The history has traditionally been considered an integral part of a physical examination and a function of the medical profession. To relegate medical history-taking to a person other than a physician is a practice which must be scrutinized, particularly since the temptation exists to assign it to the least experienced of the office staff. True, a patient may be routed more expeditiously and the case handled more efficiently if a history is obtained and recorded before the physician sees the patient. And the practice may be justified on these grounds, but only with the proviso that the physician who treats the patient and signs the pink slip has confirmed the history as it is recorded. Unless the physician is meticulous in this routine, he is likely to find himself embarrassed when he is confronted with some of his own reports. (I personally admit to having found myself signing a First Report of Injury which stated that a stevedore had been injured "while working on a wench.") The rarity of the need for revision of notes of a person experienced in taking a history does not justify a physician's abandoning the practice of carefully editing all such entries.

E. Failure to use Item 20, the box entitled "Remarks," to clarify ambiguity or to supply additional information. The following example, taken from an actual report, illustrates ambiguity:

11. Worked Friday and Saturday. Monday itching rash spread over eyes, face, neck. Eyes swollen.
12. Allergic dermatitis.

This report tells absolutely nothing, etiologically, of the condition. A few words under "Remarks" might serve to establish that the condition is an industrially incurred dermatitis or to eliminate entirely such a possibility.

Since the California Compensation Law holds the employer responsible for any "aggravation of a preexisting condition," preexisting conditions should be described carefully. The comment, "Patient is an advanced diabetic on an insulin regimen," is exceedingly valuable information if the nature of the injury has been described as "infected abrasion of the right great toe." This knowledge placed promptly in the hands of the insurance carrier may result in facilitating the medical care which may prevent death from a minor injury. Any question as to diagnosis, any omission of an important detail, any need for consultation—in short, any unusual feature in any case—automatically demands a comment in the "Remarks" box. No reasonable person likes to be kept in the dark on problems for which he bears responsibility, and claims adjustors are no exceptions to this rule. We expect them to administer claims with competence and with justice, and when we fail to provide them with information essential for capable execution of their duties we are placing them in an untenable position. When we then criticize them for a tangle in the administration of the claim, we are adding insult to injury.

Joe Friday's "All we want are the facts" is but slightly parodied by the insurance carriers, who say, "All we want are the medical facts." The words "medical facts" should be underscored, for there is a constant temptation for the physician to convert his reports into a legal opinion. Even the most experienced industrial physician needs to remind himself occasionally of this pitfall, and to remember that when an insurance carrier, or an employer or a patient wishes a legal opinion there are more reliable sources for it.

In 1954 over forty million dollars was paid out in California in medical costs and hospital care for patients in workmen's compensation cases. The amount is still rapidly rising annually. This represents so large a segment of the practice of medicine that young practitioners may be well advised to familiarize themselves with the simple fundamentals of the Workmen's Compensation Law and the older practitioners to refresh their knowledge in this field.

To facilitate education of this type, for some years a feature of the Western Industrial Medical Association meetings has been a panel discussion conducted variously by representatives of the insurance carriers, the Industrial Accident Commission, the legal profession and labor unions. These discussions served as a two-way road by permitting physicians to voice the needs which they felt had not been respected by the agencies represented.

As an extension of this method of developing a better understanding between the groups, the compensation insurance carriers have held a series of lectures by physicians for their claims employees in Los Angeles and San Francisco. Plans are now being laid for experienced claims authorities to conduct panel discussions at either county medical society or hospital staff meetings. Such a program, by being of immediate benefit to both the insurance carriers and the physicians, should prove to be of ultimate service to the person who, after all, should be the central figure in the picture—the patient.

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Workmen's Compensation

Details of Medical Reports

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• Attention to details of medical reporting that are required for just settlement of compensation cases can greatly facilitate proper adjudication.

UNDER THE CALIFORNIA SYSTEM of workmen's compensation, the computation of permanent disability ratings is reposed entirely in the Industrial Accident Commission, and is delegated by the commission to one of its departments known as the Permanent Disability Rating Bureau. This bureau computes all ratings according to the commission's own rules and precedents, and its accumulated knowledge of occupational requirements, effects of age variations, and effects of competitive handicaps on earning capacity.

The computation of ratings must be based upon available information, principally medical in character. In the majority of cases, this medical information must be in the form of reports from the physicians familiar with the facts. In order that the commission may rate intelligently, these medical reports must be complete and understandable. The report should convey a mental picture of what the physician himself sees, and what he finds in the way of working function, so that others—physicians, commission officials, attorneys, claim examiners, and also the injured workman—can visualize what disability is to be rated. The report should avoid a usurpation of the commission's prerogative of determining the percentage of permanent disability. Ratings are based upon total permanent disability, and not upon the part of the body injured. Thus 100 per cent loss of use of an arm may be only 55 per cent of total permanent disability.

In addition to clarity and completeness of reports, an effective rating system requires a uniformity of terminology and a standardization of the approach to reporting of permanent disabilities. As an aid to efficient and uniform disability rating, the Industrial Accident Commission through its medical bureau early sought to educate the medical profession in the making of complete, concise and uniform reports, and in the use of uniform terminology. Members of the medical profession generally have also sought from time to time to devise rules for standard and uniform reporting of the end results of industrial injuries. The following presentation sets forth the methods of medical examination and report which the commission prefers be used in supplying information for permanent disability rating purposes.

FACTORS OF PERMANENT DISABILITY THAT ARE RATABLE

In a general sense, ratable permanent disability factors include every deviation from a normal condition caused or brought about by an injury, either directly or indirectly, and especially those deviations which interfere with normal function or cause any actual or competitive handicap in a working capacity. The following items, while not intended as a complete list, include most reportable disability factors: Amputation, or loss of member or special sense; limitations of motion; atrophy and muscle weakness; swelling, edema and phlebitis; deformities; angulations; sensory changes; impaired motor nerve functions; circulatory changes, lack of endurance; pain tenderness and soreness; scars.

The disabilities described by the reporting physician should include all disabilities arising from the injury in question. As an aid in obtaining a clear picture of what compensable disability should be expected, the report should describe the nature and extent of the original injury (including x-ray findings); the nature of the treatment employed, with a statement of any operations performed and the results; the nature and degree of any complications which may have arisen to delay repair; the nature of any previous disability or deformity; any complications by reason of venereal, tuberculous or other infection, or by alcoholism; the temperament of the patient, and any evidence of hysteria, neurasthenia or hypochondria.

The report of permanent disability findings should not be prepared until such time as the physician in charge of the case concludes that it has reached a permanent stage or that no further improvement or retrogression is to be expected from either further surgical or physiotherapeutic measures. The final report should be completed by the attending physician, where practicable. It should be made without any unnecessary delay after a substantially fixed condition has been reached in the progress of the patient.[1]

Presented before a Joint Meeting of the Sections on General Practice and Industrial Medicine and Surgery at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

Temporary Disability: A physical handicap due to industrial injury, involving wage loss and in which on the basis of medical opinion maximum improvement or regression has not occurred. The condition is not permanent and stationary.

A. *Temporary total disability.* There is no capacity for earning in available industrial employment. Further improvement or regression is expected.

B. *Temporary partial disability.* There is a capacity to do some work but on a wage loss basis.

Permanent Disability: The disability which remains after medical opinion believes maximum improvement or regression has occurred. When the condition becomes permanent and stationary.

A. *Medical benefits in relation to permanent disability.* Medical benefits may still be necessary even though the condition has become permanent and stationary.

Example:

1. The renewal and maintenance of prosthesis.
2. Nursing care in the case of a helpless patient.
3. Dilation of the urethra after injury to urethra.

B. *Factor of permanent disability.* The several individual disabling conditions which go to make up the patient's disability are known as Factors of Permanent Disability. Without knowing just what the factors are, accurate rating is difficult or impossible. The rating is based on the factors of Permanent Disability. The Commission Referee determines the factors of Permanent Disability in formal cases. How are they determined by the referee?

In most cases they are determined on basis of medical reports, made after a careful examination in which the disability is evaluated by the examining physician.

Medical Examinations (for evaluation of disability)

A. *Complete for evaluation of:*
   1. Status of case.
   2. All factors of Permanent Disability due to injury.
   3. Need of future medical care.

B. *Uniformity in examinations is essential:*
   1. To obtain uniform description of Factors.
   2. To include all the disability.
   3. To avoid delays due to:
      a. Reexamination.
      b. Conflicts in medical opinions arising out of different methods of measurements.

C. *Establishment of standard method.*
   1. 1948 California Medical Association set up a subcommittee to study problem.
   2. 1950 subcommittee report published in book form:
      a. Book, "Evaluation of Industrial Disability."[2]
      b. Industrial Accident Commission approved book and method.
      c. Standard method is now a requirement in industrial cases.
      d. Commission's Medical Bureau uses approved method.

Examination as Done in Medical Bureau

A carpenter with a fracture of neck of femur is being examined.

A. *History.*
   1. Injury.
      a. Type of fracture: intrascapular? extracapsular? displaced? compound? comminuted? soft tissue injury?
   2. Treatment.
      a. Open or closed reduction?
      b. Pin or plate used?
      c. Period of immobilization?
      d. Capability of operating surgeon?
   3. Complications.
      a. Infection?
      b. Malunion? Nonunion?
      c. Subsequent surgery?
      d. Thrombophlebitis?
      e. Pneumonia? Penicillin reaction, etc.
      f. Traumatic arthritis?
   4. Preexisting disability.
      a. Prior injury?
      b. Disabling arthritis?

B. *Subjective complaints given by patient.*
   1. Pain: Character, degree, location, frequency, what relieves the pain, etc.
   2. Numbness, tingling, sensitivity to cold, etc.
   3. Manner in which complaints limit the ability to work.
      a. How far can he walk?
      b. How much can he lift?
      c. Can he use ladder?
      d. Can he walk on rough ground?
      e. Can he work on pitched roofs?
      f. Can he work all day without rest?

C. *Findings on Examination.*
   1. General findings:
      a. Ability to rise on toes on heels.
      b. Is a brace necessary? Crutch? Cane?
      c. Is surgical scar well healed? Infection?
      d. Deformity? Swelling? Tenderness?

  - e. Evidence of thrombophlebitis? Impaired arterial flow?
  - f. Evidence of nerve injury? Foot drop?
  - g. Reflexes changes? Sensory changes?
  - h. Fracture: Is union solid—x-ray and clinical? Is metallic fixation still present?
  - i. Muscle spasm.

D. *Evaluation.*

After completion of the examination, the examiner must evaluate the entire medical problem involved, in order that the Referee may make fair decision.

Evaluation is based on:

1. Type of injury.
2. Treatment, period of immobilization, etc.
3. Complications.
4. Complaints.
5. Findings.

Any conflicts of medical opinion in the record must be resolved if necessary for making evaluation.

Medical Reports

A. *There are certain vital points which must be covered in every report. Otherwise, reexamination will almost always be necessary. These are:*

  - a. Status of the case.
  - b. Factors of permanent disability.
  - c. Need of further medical care.

The use of a standard form of medical report has many advantages. The form used by the Commission's Medical Bureau is a semi-outline form of report. The advantages are:

  - a. Short and concise.
  - b. Examiner less apt to omit vital points.
  - c. Tends to discourage long-winded discussions.
  - d. Discourage vague and indefinite statements.

B. *Format of Medical Bureau Report:*

1. History (usually omitted).
2. Subjective complaints.
3. Findings on examination.
4. Discussion and opinion.

The subjective complaints given by the patient are evaluated as to whether or not they are actually disabling and are result of injury. The following are the points which must be covered in every report:

  - a. Is there disability which is probably the result of injury claimed?
  - b. If so, is it
    - Temporary total?
    - Temporary partial? (If so, give ability to work)
    - Permanent and stationary for rating?
  - c. If permanent and stationary for rating, then describe:
    - Factors of permanent disability which are a result of injury.
    - Factors to which the injury was an aggravating or contributing cause.
    - Preexisting disability.
  - d. Is further medical treatment necessary to cure or relieve the effects of injury?
  - e. If so, what type of treatment is necessary?

Medical examinations of industrial injuries are somewhat different from examinations for other purposes such as pre-employment examination or life insurance examinations, because they are primarily written for laymen; judges, attorneys, insurance claims adjustors and the injured parties.

Their importance lies in the fact that they are the source and sometimes the only source from which permanent disability factors are determined: and the permanent disability factors to be defined later in turn decide the rating in dollars and cents which the insurance carrier is called upon to pay and the applicant is entitled to receive.

The usual medical file on a case of industrial injury should contain the first report of injury which should list *all* the injuries received by the applicant in any given accident, the progress reports from month to month, the operative report if surgery was performed, x-ray reports and laboratory reports. Lastly, and this is most important, the final report of residual or permanent disability resulting from the injury sustained with an opinion as to apportionment if there is prior injury or disease present.

In conclusion, the following rules should be kept in mind:

As a general rule,

1. Temporary disability cannot be apportioned.

2. Preexisting pathology which *did not* cause disability cannot be apportioned because industry takes an employee as it finds him; however, a preexisting disability, as distinguished from a nondisabling pathological condition, can be apportioned.

3. Probabilities only should be considered in compiling a medical report, not possibilities. The latter may have a place in differential diagnoses, but not in evaluation of disability and only tend to confuse the issues involved.

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Disability — Is it Permanent?

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• Too often cases of industrial injuries are submitted for permanent disability rating before maximum recovery is attained and the condition is permanent and stationary.

This is frequently a situation that is detrimental to the injured working man, since his physical disability might be further reduced by additional treatment, and his future earning power and economic status thus be improved. Also it may be detrimental to the insurance carrier and/or employer, since in some instances it results in increased permanent disability award payments for portions of the condition which are not truly permanent.

Inadequate medical reports also are a frequent cause of unfair awards. The necessary factors used to arrive at proper conclusions, the errors that have been observed and the importance of this problem are discussed.

BEFORE ONE APPROACHES the problem of reports on permanent disability, the condition under consideration should be permanent and stationary, meaning that maximum improvement has been obtained and the residual factors of disability will continue unchanged for the remaining life of the patient. Unfortunately, too many cases are reported as permanent and submitted for rating too soon after injury, with many resulting conflicts between the patient and insurance carrier (or employer), unnecessary litigation expense, and adverse psychological reactions on the part of the patient which may further compound the problem involved. Hence, it is to be hoped that all physicians who deal with patients who have industrial injuries will think twice and, before recommending final disposition of the case at hand, will ask themselves, "Is it permanent?"

In order to emphasize the importance of the overall subject, certain facts should be brought forth. During the fiscal year 1955-56 in California there were completed 11,682 permanent disability ratings. In addition there were 6,962 compromise and release cases which fundamentally require the same factors of information. Since approximately half of these ratings involve disability of an upper extremity, and four-fifths of the half involve the area of the hand, most of the problems to be discussed will refer to this portion of the body. Taking the year 1954, the average settlement in 16,052 permanent disability cases was slightly more than $2,300, or in total an expenditure by workmen's compensation carriers of $37,531,000 for permanent disability settlements. This excludes the expense incurred by approximately 250 self-insured employers.[2] Since in any case of this type premature rating may increase the amount of award and often will result in overpayment of some hundreds of dollars, inaccuracies of rating could sharply raise the cost of settlement. The resultant rise in insurance costs would have to be absorbed in higher prices for products of industry, and eventually be paid for by all purchasers—the general public, including the patient.

Perhaps the most frequent cause of error in rating is submission for rating at too early a date. Just as important as the already mentioned overpayment for factors of disability which are not truly permanent, is the fact that the injured person might be improved or further rehabilitated by additional treatment if his condition were not considered "permanent." To deprive him of obtaining a better result and improved function with which to compete in the labor market is certainly unjustified and unfair to the patient. The commonest faults in this respect are: (1) Dismissal of patients who have had amputation while the stump is so tender and painful as to interfere with function, although such conditions can usually be corrected by treatment, (2) dismissal of patients with excessive weakness or excessive grasp loss which can be improved by proper exercise, (3) dismissal of patients with limitation of function which can be reduced by adequate physical therapy (not merely the common practice of heat lamp or diathermy treatments unaccompanied by additional measures), and (4) too early rating of cases in which reconstructive or rehabilitative operation can produce beneficial results.

The problem of excessive grasp loss deserves considerable attention, for when loss is excessive it raises the percentage of disability rating, but when consistent with the function loss and other factors of an injury it does not affect the rating. The mechanics of the California rating system, which are more comprehensive than in other states, are designed to take into account that amount of grasp loss expected from the residuals of hand injuries. For example, if the rating of disability for an amputated finger comes to 6 per cent, the award is

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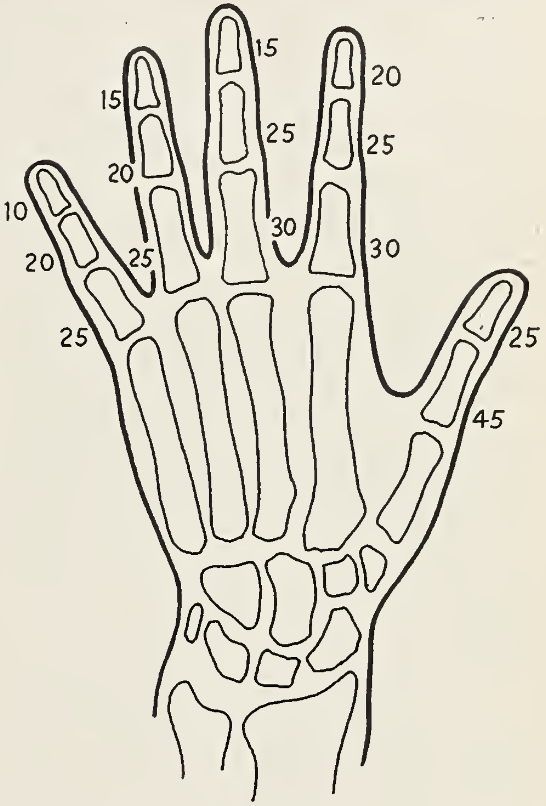
Presented before a Joint Meeting of the Sections on General Practice and Industrial Medicine and Surgery at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

calculated to include a grasp loss consistent with the amputation (in this case approximately 25 per cent loss of grip). If the percentage loss calculated for the grasp loss alone exceeds the amputation rating (or function loss rating where amputation has not occurred) then the larger rating percentage is used and the monetary settlement becomes increased. The accompanying chart may serve as guide as to what constitutes grasp loss commensurate with the function loss. The estimates of loss shown on the chart are slightly modified from those presented by Kirkpatrick,[4] giving figures of higher allowable percentage loss in some instances, which are felt to be commensurate with the amputations or motion losses shown. (All physicians doing industrial injury work should study the excellent article of Kirkpatrick regarding grasp loss.) Experience has shown that excessive grasp loss is rarely a permanent factor and rating as such is seldom justified.

It is quite common for a case to be submitted for rating in which the physician indicates permanent disability consists of amputation of the middle finger, gives figures which represent 50 to 60 per cent grasp loss, and states that the condition is now permanent and static and ready for rating. Reference to the accompanying chart would show immediately that such an opinion is in error.

Another frequent difficulty is the presentation of permanent disability reports containing inadequate information regarding the disability which exists. Incomplete measurements of function loss, improper description of amputation level (which should be based on bone length and not soft tissue level), absence of measurements of atrophy, lack of recording of grasping power in upper extremity injuries, failure to describe shortening or deformities secondary to fracture or other injury, and lack of description of instability and the degree of instability are common. This prevents accurate rating and usually results in the injured person's receiving a lesser compensation award for his handicap than is just. He then either accepts an inadequate award—perhaps not knowing it is inadequate—or becomes involved in litigation, with expense, delay and often bitter reaction.

PER CENT GRASP LOSS COMMENSURATE WITH AMPUTATION LEVEL



PER CENT GRASP LOSS COMMENSURATE WITH DISTANCE FINGERTIP MISSES MIDPALM ON FLEXION

Finger	Distance (inches) fingertip misses mid-palm				
	½	1	1½-2	2½	3
	PER CENT				
Index	10	15	20	20	25
Middle	15	20	25	25	30
Ring	10	15	20	20	25
Little	10	15	20	20	25

One further shortcoming of many reports by physicians is failure to cover the problem of subjective complaints, which in California are just as important as factors of rating as are objective findings. In some cases, particularly in cases of injury to the back, the subjective factors may far exceed in rating weight the factors of limited motion. Subjective disability without objective findings may result in a permanent total disability award in some instances. Therefore, subjective complaints should be thoroughly described. An excellent article by Barritt,[1] which includes the present standard of classification, should be available to industrial physicians when such problems arise.

The following suggestions may be of help to a physician in the preparation of permanent disability reports.

The most accurate method to determine when a patient's condition is truly permanent and stationary is repeated examination at intervals varying from one to three months, making sufficiently detailed descriptions of the complaints and findings and accurate measurements of function in each report to permit comparison and evaluation of the progress of the case. When it is apparent the condition has ceased to fluctuate, either in improvement or retrogression and the findings are medically consistent with the injury, it is then the proper time for submission for rating. This period is seldom less than six months following injury in the simpler cases, and may be as long as three or four years—sometimes longer—in complex cases. In cases of major hand injury maximum recovery rarely is reached in less than one year. If an upper extremity is involved, the reports should always give results of repeated tests of grasping power, for in some cases there is steady improvement in this respect until final disposition is near, and then suddenly strength seems to vanish. Adequate repeated reports in such cases go far to assist the physician in substantiating his final evaluation of the degree of grasp loss.

When the final report is to be formulated, the following factors should be included:

1. Subjective complaints should be listed in full, as given by the patient, and classified by the accepted standard as to degree.

2. Deformities, scars and other cosmetic disfigurement should be described.

3. Objective findings—such as atrophy and shortening—should be carefully and completely covered.

4. Descriptions of impairment of function should follow the accepted standard of measurement given in *Evaluation of Industrial Disability*, Oxford University Press, 1950.

5. Grasp loss should be shown by three comparative tests.

6. Preexistent disabilities in the area involved should be segregated from the results of the injury, or, if they overlap, the examiner should apportion the amount due to the injury being considered.

7. Where the opposite side has been involved in preexistent disability (preventing its use as a normal for comparison), or bilateral disabilities occur from the same injury, it is necessary for the examiner to establish estimated normals for the particular individual in order to fairly reveal the disability that has resulted.

8. The examiner should offer his own best evaluation as to the handicap resulting from subjective complaints—which may differ in degree from the patient's interpretation. Likewise in the event of excessive grasp loss or evidence of other exaggeration, he should give his opinion as to the degree to which these factors are present and reasons to substantiate his questioning of the validity of the findings.

9. The physician should make no attempt to state a percentage of disability as is done in some other states.

In conclusion there is much that can be done by the physician to accomplish accurate and fair permanent disability awards to the injured patient, prevent unnecessary expense to insurance carriers, and reduce litigation which is an expense and delay to both parties, if attention is devoted to the necessary details of this subject.

"The evaluation of disability of an injured employee is an art comparable to that of the clinician in medical practice."[3]

2007 Wilshire Blvd., Los Angeles, California.

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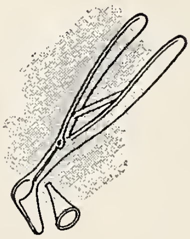

Loss of Blood at Operation

A Method for Continuous Measurement

FRED W. BORDEN, *M.D.*, San Jose

• A method for continuous measurement of surgical blood loss has been devised and has been used clinically in some 400 cases. The method combines volumetric measure of the suction loss and gravimetric measure of the sponge loss. The volumetric device automatically deducts the volume of rinse water used and thus measures the amount of blood collected in a metering cylinder. The suction loss scale shows continuously the amount of blood in the metering cylinder. The gravimetric device requires counting sponges into the weighing pan, and turning a dial scale to deduct the initial weight of the sponges. The volume of blood in the sponges is then read directly on the dial scale. Use of the instrument, which is under the supervision of the anesthesiologist, adds about two minutes per hour to the time normally required for counting the sponges; and about three minutes per hour is required for tending the volumetric instrument.

In clinical use, knowing constantly the amount of blood loss permits the starting of transfusion before serious deficit develops, and then maintaining the patient's blood volume at a predetermined optimum level. In some 400 cases the continuous measurement of the blood loss served as a reliable guide for carrying out the loss-replacement plan within close limits of accuracy.

Meeting the hazards of surgical blood loss is a complex problem that is as old as surgery itself. Factors of preoperative blood volume and preoperative transfusion are included in the problem, as well as the more obvious factors of blood loss and blood replacement during and after operation. One aspect of the problem, that of obtaining blood for transfusion, has been solved by the ready supply of blood available through the blood bank system. But another aspect of the problem is still present and concerns, primarily, the indications for blood replacement during operation. Secondarily, it concerns the plan for replacement.

To be most effective when the need does arise, transfusion must be started promptly, and a balance must then be maintained between loss and replacement. Hazards lie in delaying the start of transfusion, as well as in transfusing too much or too little. The skill and judgment required to evaluate surgical blood loss, to decide when transfusion is needed, and to plan and guide replacement have heretofore depended mainly on clinical signs and symptoms. These signs and symptoms give no quantitative indication of the loss, nor are they even pathognomonic of blood deficit. Hence, skill and judgment in these matters can be most effectively applied, and can be fully and reliably supported only when the blood loss is measured continuously throughout the surgical procedure.

A method for continuous measurement of surgical blood loss has recently been devised and has been clinically tested. It utilizes for measurement the bloody sponges and the mixture of blood and rinse water from the suction tube as these waste materials are removed from the surgical field. It thus makes possible a running account of the blood loss throughout a surgical operation. At any stage of the operation quantitative answers can be given to such basic questions as "How much blood has been lost so far?"; "What per cent of the patient's blood volume does this loss represent?"; and, "How closely does transfusion match the loss now?"

By measuring blood loss continuously, significant deficit can be recognized and replacement started even before physical changes due to blood loss become manifest. The blood volume can then be kept within physiological limits of tolerance if the loss-replacement balance is quantitatively maintained.

METHOD OF MEASUREMENT

A newly devised volumetric method for measuring suction loss and a gravimetric method for measuring sponge loss have been combined in the design of the instrument described in this report. The instrument has three component parts: The volumetric device for automatically measuring the blood collected by suction; auxiliary suction bottles to receive other liquids collected by suction; and the gravimetric device for measuring blood collected in sponges and drapes. These components are shown in the photograph of the instrument, and in the schematic drawing (Figures 1 and 2).

The gravimetric device consists of a spring balance having a rotatable dial scale specially graduated to read directly in cubic centimeters of blood, and,

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Presented before the Section on Ear, Nose and Throat at the 85th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

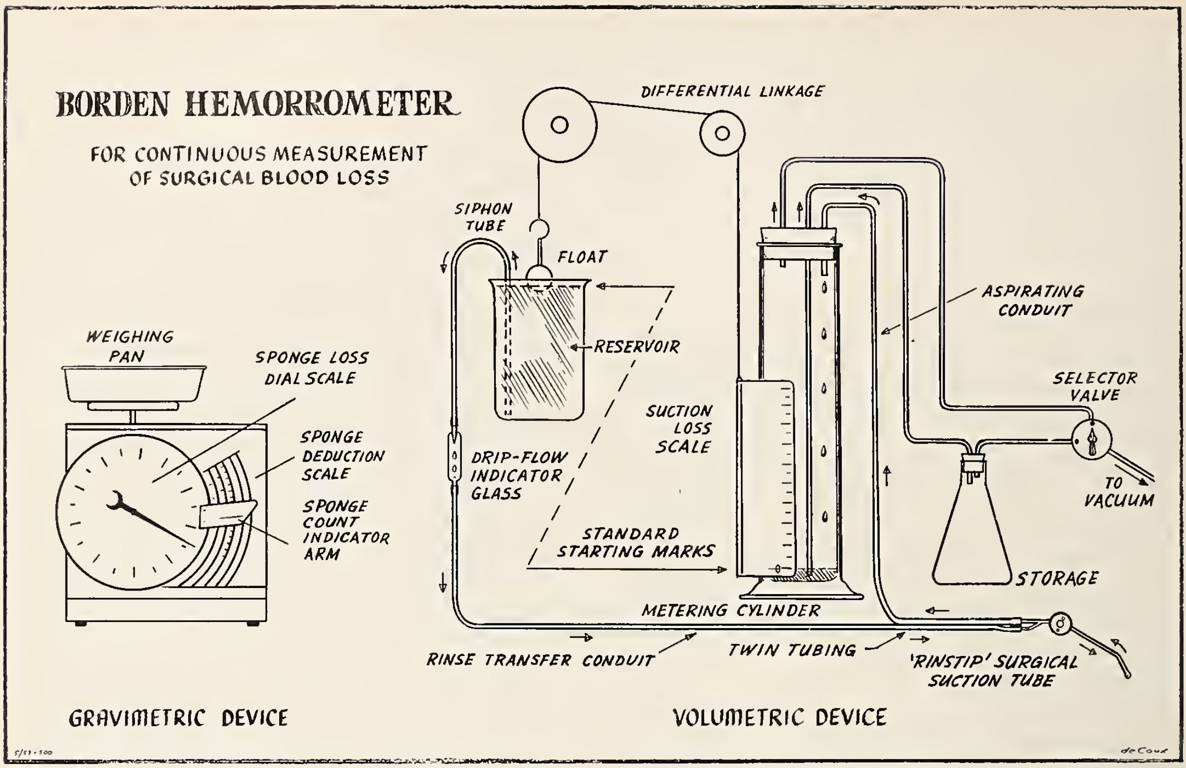
BORDEN HEMORROMETER
FOR CONTINUOUS MEASUREMENT OF SURGICAL BLOOD LOSS
DIFFERENTIAL LINKAGE
SIPHON TUBE
FLOAT
RESERVOIR
ASPIRATING CONDUIT
SELECTOR VALVE
TO VACUUM
WEIGHING PAN
SPONGE LOSS DIAL SCALE
SPONGE DEDUCTION SCALE
SPONGE COUNT INDICATOR ARM
SUCTION LOSS SCALE
DRIP-FLOW INDICATOR GLASS
STANDARD STARTING MARKS
STORAGE
METERING CYLINDER
RINSE TRANSFER CONDUIT
TWIN TUBING
'RINSTIP' SURGICAL SUCTION TUBE
GRAVIMETRIC DEVICE
VOLUMETRIC DEVICE

Figure 1.—Two devices used in combination to maintain continuous accounting of loss of blood at operation—the scale for measuring the amount of blood in sponges, and the volumetric device for metering the amount removed by suction.

concentric with the dial, a stationary scale on which the graduations indicate number and kind of sponges. An arm attached to the dial scale serves as a sponge count indicator. By rotating the dial scale so the arm indicates on the stationary scale the number and kind of sponges that are counted into the weighing pan, the dry weight of the sponges is automatically deducted from their gross weight. The reading of the pointer on the dial scale will therefore show directly the net volume of blood in the sponges. No calculations or conversions are necessary.

The volumetric device comprises: A reservoir for dispensing rinse water; an unmarked glass metering cylinder for collecting the rinse water and aspirated blood; a new kind of surgical suction tube* for the two-fold purpose of automatically transferring rinse water from the reservoir to the metering cylinder and aspirating blood from the surgical field into the metering cylinder; a mechanical differential linkage for automatically measuring the blood as it is collected in the metering cylinder; and a selector valve system for regulating and directing the orderly collection and disposal of liquids.

In use, rinse water is transferred continuously from the reservoir to the metering cylinder by means of the surgical suction tube. The suction tube is automatically self-rinsing, and is connected to the volumetric device by a twin rubber tubing. The small rinse-transfer conduit of the twin tubing carries a continuous drip-flow of water from the reservoir to the interior of the surgical suction tube, and the rinse water is then carried by suction through the large aspirating conduit into the metering cylinder. By this means the surgical suction tube and the aspirating conduit are rinsed continuously. This flow pattern through the self-rinsing suction tube constitutes a hydraulic linkage between the rinse reservoir and the metering cylinder, and is an integral part of the automatic system for measurement of the blood collected by suction.

A scale graduated in cubic centimeters is suspended from one side of the differential linkage and is free to move up and down along the wall of the metering cylinder. A float in the reservoir is suspended from the other side of the differential linkage. The movement of the scale is thus correlated to the movement of the float, and the mechanical linkage between float and scale is thereby integrated with the hydraulic linkage between reservoir and metering cylinder. This system is the means for automatically deducting the volume of the rinse water from the total contents of the metering cylinder.

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* "RinsTip" surgical suction tube.

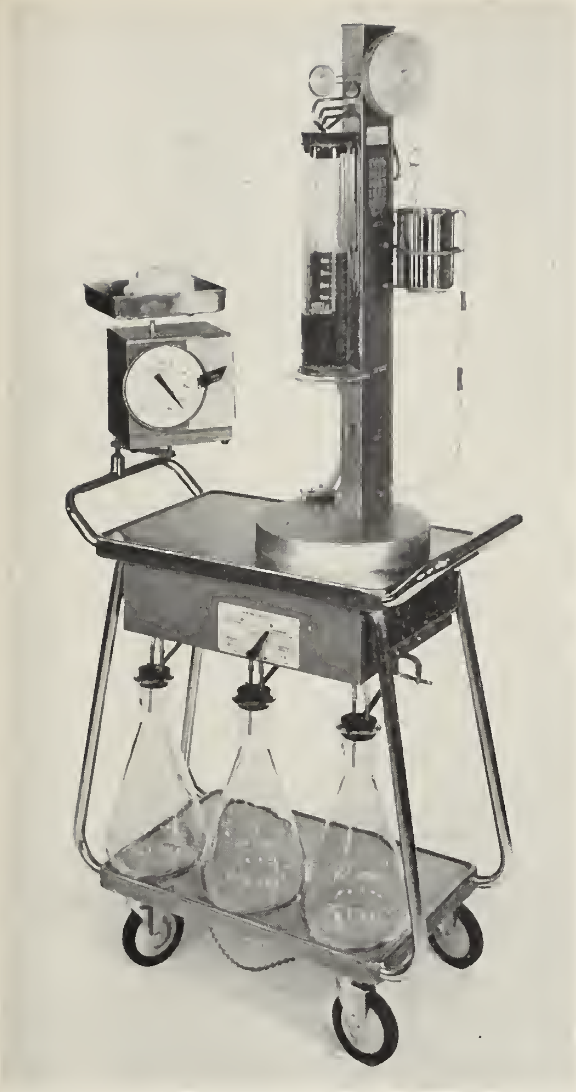

Figure 2.—Hemorrometer unit used in operating room. The sponge loss scale reads 330 cc., the suction loss scale 470 cc.

In preparation for use. rinse water levels in the reservoir and metering cylinder are adjusted to standard starting marks. The scale is then adjusted to read zero at the starting level of water in the metering cylinder. After these levels are established, a continuous drip-flow of approximately a pint an hour is started through the surgical suction tube and is continued until the close of operation. This transfer of rinse water through the suction tube from reservoir to metering cylinder causes the water level in the reservoir to fall and the level in the metering cylinder to rise in a proportional amount. As the float falls. in response to withdrawal of rinse water from the reservoir, the scale rises in the same proportional amount so that the scale continues to read zero in reference to rinse water.

When blood is aspirated into the metering cylinder it raises the liquid level, but it does not raise the scale. Thus a new reading is shown on the scale, and it indicates the amount of blood that entered the cylinder. Successive increments of blood are thus automatically metered and totaled. The reading on the scale, therefore, always indicates the total amount of blood in the metering cylinder.

At whatever height the scale may be along the cylinder wall, the liquid below the zero mark represents the amount of rinse water in the cylinder, and the liquid above the zero mark represents the amount of blood.

To continue the measuring process beyond the capacity of the metering cylinder, a selector valve is provided by which the mixture of blood and rinse water can be valved off from the metering cylinder into the storage flask. At the same time the reservoir must be refilled with rinse water. The combined process of "refill and withdrawal" lowers both the suction loss scale and the liquid level in the metering cylinder. The full capacity of the metering cylinder is thus made available again for continued measurement. This process of "refill and withdrawal" can be repeated as often as the surgical procedure requires.

For aspirating liquids other than blood from the surgical field a conventional suction tube is used. It is connected so the liquids do not enter the metering cylinder but are aspirated directly into one of two auxiliary suction bottles, either of which can be removed without interrupting the suction or the operation of the instrument. A separate connection is provided for aspirating liquids from the patient's respiratory tract, and thus the "airway suction" can be kept ready for instant use.

The instrument has been developed for routine use in a wide variety of surgical conditions. During the surgical procedure its use is under the supervision of the anesthesiologist, and the circulating nurse assists him as needed. No attention from other operating room personnel is required for making and recording the measurements. The surgeon's usual technique can be used for clearing blood from the surgical field except for limiting the use of the self-rinsing suction tube to the aspiration of blood, and using a conventional suction tube for aspirating other liquids from the surgical field. Sponges, or suction, or both can be used as desired.

Time-motion studies show that it takes very little time to measure surgical blood loss by this method. The sponge loss measurement is organized so that counting and weighing a number of sponges and recording the amount of blood in them takes only 15 to 20 seconds. This is repeated whenever a number of sponges accumulate, and averages three to six times per hour. Measuring the sponge loss thus adds only two minutes per hour to the time normally required for counting the sponges.

TABLE 1.—*Distribution of 135 Cases of Tonsillectomy According to Loss of Blood, in Per Cent of Total Blood Volume.*

Number of Cases	1	6	7	13	28	24	16	9	6	4	9	5	3	3	1
Per Cent Loss	*1*	*2*	*3*	*4*	*5*	*6**	*7†*	*8*	*9*	*10*	*11*	*12*	*14*	*17*	*21*

* Median. † Average.

The suction loss measurement is entirely automatic, the amount of blood in the metering cylinder being shown continuously on the suction loss scale. When the metering cylinder is more than half filled with blood-rinse mixture, the liquid must be valved off and the rinse reservoir refilled. This combined refill and withdrawal takes from 40 to 60 seconds. Thus, in an operation involving blood loss of 500 to 700 cc. per hour, about one or two minutes per hour is required for tending the volumetric device. Entries in the written record take about 30 seconds each, and are made two to four times per hour.

At the start of the day, 4 to 5 minutes is required to put sterile parts in place and ready the instrument for the first case. Between cases, 3 to 5 minutes is needed to change suction tubes and refill the rinse reservoir. After the last case of the day, 12 to 18 minutes is required to clean the instrument and wrap the rinse water delivery conduits for sterilizing.

The instrument has been tested in a testing laboratory as well as in the surgery where it has been used in some 400 cases. Some of the data collected in these cases are presented here to illustrate the use of the method. These data were collected at O'Connor Hospital, San Jose Hospital, and Santa Clara County Hospital in San Jose; Palo Alto Hospital in Palo Alto, and Stanford University Hospital in San Francisco.

CLINICAL USE OF THE METHOD

Blood loss measurements were made in 135 cases of tonsillectomy taken at random. Table 1 shows the distribution of the 135 cases according to the amount of blood lost. The loss is reported in terms of per cent of the patient's estimated preoperative blood volume, using 66.6 cc. per kg. of body weight as the basis. The losses ranged from 1 per cent to 21 per cent, the majority of the cases falling in the range 4 per cent to 7 per cent. The median for this distribution was 6 per cent, and the average blood loss for the series was 7 per cent.

TABLE 2.—*Results of Surgical Blood Loss Measurements Made with the Borden Hemorrometer in 28 Cases of Tonsillectomy. The Per Cent Loss is Expressed in Terms of Preoperative Blood Volume.*

Age Years	Weight Lb.	Estimated Pre-op Blood Volume cc.	Suction Loss cc.	Sponge Loss cc.	Total Blood Loss Volume cc.	Total Blood Loss Per Cent
31	110	3300	40	0	40	1
22	145	4400	90	0	90	2
5	40	1200	15	15	30	2
9	115	3500	70	40	110	3
2	24	720	25	0	25	3
24	164	4900	220	10	230	4
3	35	1100	40	0	40	4
52	195	5900	270	30	300	5
2	34	1000	20	30	50	5
25	170	5100	320	0	320	6
3	30	900	40	10	50	6
24	120	3600	240	10	250	7
2	29	900	60	0	60	7
14	180	5400	400	60	460	8
3½	35	1100	75	15	90	8
7	76	2300	160	40	200	9
4	38	1100	70	30	100	9
6	51	1500	135	10	145	10
4	33	1000	100	0	100	10
28	131	4000	370	60	430	11
2	26	800	70	20	90	11
31	125	3800	380	60	440	12
3	30	900	100	10	110	12
28	125	3800	515	15	530	14
4	43	1300	150	30	180	14
5	50	1500	225	35	260	17
4	41	1200	190	10	200	17
2	32	965	80	120	200	21

Table 2 shows data on cases selected from the series of 135. The cases were listed according to the per cent loss of blood. Except for the two extremes, two cases are reported from each of the percentage groups shown in Table 1—the patient who weighed the most and the patient who weighed the least. The total blood loss ranged from 25 cc. to 530 cc. The loss of 25 cc. was 3 per cent of the patient's blood volume and the loss of 530 cc. was 14 per cent of the patient's volume. That expressing loss in per cent of preoperative blood volume is the more informative way to report it is illustrated by comparing some of the cases. In the group in which the loss was 4 per cent of total volume, for example, one patient lost 230 cc. and the other lost 40 cc. While the difference in volume was great, the losses represent the same proportion of each patient's preoperative blood volume. The greater significance of loss reported in per cent is further illustrated when an apparently "average" loss is compared in two patients. A 90 cc. loss represented 2 per cent in one case, while in another the same volume represented 11 per cent.

Table 3 is similar to a standard printed form that is used to record the blood loss measurements and related data. The data recorded in Table 3 were taken in an actual case of lobectomy. During the 5¼ hours of the operation, ten lines of the record form were filled in, providing a running account of the blood loss and replacement throughout the operation. The total blood loss mounted to 2,485 cc., and a total of 2,500 cc. of replacement blood was infused. To provide a margin of safety, a surplus of 200 cc. was planned as the maintenance

TABLE 3.—*Hemorrometer Loss-Replacement Record in Case of 170-pound Man, 46 Years of Age, Undergoing Right Upper Lobectomy for Tuberculosis.*

Estimated "normal" blood volume, based on patient's weight		5100 cc.
Adjustment factor, based on the patient's condition	—10%	—500 cc.
Pre-op blood volume, based on patient's weight and condition		4600 cc.
Tolerance for:		
Surplus		250 cc.
Deficit		500 cc.
Planned maintenance level:		
Surplus		200 cc.
Deficit		— cc.

										Replacement	
Cc. Withdrawn from Cylinder	Reservoir Refill cc.	Blood in Withdrawal (Col. 1 Minus Col. 2)	Cumulative Total of Column 3	Suction Loss Scale Reading	Sponge Loss (From Tally Record)	Cumulative Total of Column 6	Estimated in Drapes	Total Blood Loss (Cross Total Cols. 4, 5, 7, 8) Volume	Time Start 8:10 Stop 1:25	Cumulative Total	Surplus or Deficit
1	2	3	4	5	6	7	8	9	11	12	13
......	......	......	......	40	100	100	50	190	8:55	300	+110
500	500	......	......	75	......	100	50	225	9:15	500	+275
500	500	......	......	350	160	260	150	760	10:20	900	+140
500	300	200	200	150	......	260	150	760	10:30	900	+140
......	......	......	200	280	70	330	150	960	11:27	1350	+390
500	500	......	200	410	......	330	150	1090	11:28	1450	+360
500	200	300	500	250	50	380	150	1280	11:51	1550	+270
500	300	200	700	400	240	620	150	1870	12:20	1750	—120
500	200	300	1000	200	310	930	150	2280	12:55	2300	+ 20
......	......	......	1000	225	180	1110	150	2485	1:25	2500	+ 15

level: that is, replacement was planned to be 200 cc. greater than the loss. Comparing the replacement surplus or deficit with the planned maintenance level shows how closely the plan was carried out. The maximum surplus recorded was 390 cc. A deficit of 120 cc. was recorded at one stage of the operation. The transfusion rate was immediately increased, so that 35 minutes later there was a surplus of 20 cc. At the close of operation the volume transfused was 15 cc. greater than the volume lost. It should be noted that while actual measurements of the sponge loss and suction loss were made, the loss in drapes was estimated visually. However, even a 50 per cent error in this estimate would introduce only a 3 per cent error in the total volume.

Table 4 is a summary of the loss-replacement records in 25 selected cases of major surgical operation. Most of the cases represent types of operation which by their nature usually require transfusion. Replacement blood was given in all the cases cited. The "Hemorrometer Loss-Replacement Plan" was formulated before operation to meet the particular needs of each case. The plan is directed toward quantitative maintenance of optimum blood volume. This plan included an estimate of the patient's tolerance for deficit, tolerance for surplus and the planned maintenance level, these figures being expressed with reference to the estimated preoperative blood volume. In some instances when tolerance for deficit was reached, transfusion was begun without waiting for appearance of clinical signs of deficit. After transfusion was started, comparison of the replacement surplus or deficit with the planned maintenance level served to guide the rate of transfusion. Comparison of the maximum recorded surplus and deficit in the individual cases (Table 4) indicates how well the patient's blood volume was maintained throughout operation.

The highest blood loss recorded was in a case of lobectomy (Case 2), in which 4,540 cc. was lost and 4,500 cc. of replacement blood was given. However, the replacement was not in such close agreement with the loss at all times. At one stage of the operation there was a surplus of 315 cc., and at a later stage a sudden massive effusion resulted in a temporary deficit of 800 cc. An example of matching replacement to loss more closely is provided by the third case of mitral commissurotomy (Case 9). Here, the plan was to maintain the patient's blood volume unchanged. Comparison of the maximum recorded surplus and deficit with the planned maintenance level indicates how well the plan was carried out. Throughout the operation, the patient's blood volume did not vary more than plus or minus 5 per cent from his preoperative blood volume.

The lowest losses recorded were in two cases of operation on very young patients (Cases 19 and 20). In Case 19, because of severe anemia, it was planned to maintain a sizable surplus throughout operation. Accordingly, transfusion was started immediately before operation, and a surplus thus maintained

TABLE 4.—*Results of Surgical Blood Loss Measurements Made with the Borden Hemorrometer. Comparing the Maximum Recorded Surplus and Deficit with the Planned Maintenance Level Indicates How Well the Patient's Blood Volume was Maintained Throughout Operation.*

Operation	Case No.	Sex, Age, Weight, Lb.	Estimated Normal Blood Volume cc.	Adjustment Factor for Patient's Condition cc. or %	Estimated Pre-op Blood Volume cc.	H L R Plan* Tolerance for: Surplus cc.	H L R Plan* Tolerance for: Deficit cc.	H L R Plan* Planned Maintenance Level ± cc.	For Comparison with Planned Maintenance Level Maximum Recorded: Surplus cc.	For Comparison with Planned Maintenance Level Maximum Recorded: Deficit cc.	Suction Loss cc.	Sponge Loss cc.	Estimated or Weighed in Drapes cc.	Total Blood Loss Volume cc.	Total Blood Loss Per Cent	Total Replacement Volume cc.	Total Replacement Surplus or Deficit at Close of Operation cc.
Resection, right maxilla	1	M 46 170	5100	0	5100	500	500	0	+155	—125	1900	345	0	2245	44	2400	+155
Pneumonectomy and lobectomy	2	M 56 151	4500	—15%	3800	200	300	0	+315	—800	1850	2440	250	4540	120	4500	— 40
	3	M 46 170	5100	—10%	4600	250	500	+200	+390	—120	1225	1110	150	2485	54	2500	+ 15
	4	M 69 155	4650	0	4650	300	500	0	+150	— 20	420	330	100	850	18	1000	+150
	5	M 58 190	5700	0	5700	0	500	—200	0	—450	160	230	200	590	10	500	— 90
	6	M 52 118	3500	+1300	4800	0	500	—250	+ 90	—110	120	90	100	310	7	400	+ 90
Mitral commissurotomy	7	M 35 97	3000	—250	3250	0	350	—300	0	—185	300	85	100	485	15	300	—185
	8	M 38 118	3540	+10%	3890	0	500	—300	0	—385	260	160	125	545	14	500	— 45
	9	F 53 135	4100	0	4100	0	500	0	+130	—190	220	395	200	815	20	800	— 15
Aortic graft	10	F 44 130	3900	0	3900	0	500	0	+ 40	—630	2050	260	250	2560	66	2600	+ 40
	11	M 53 130	3900	0	3900	0	500	0	+ 30	—230	500	775	100	1375	35	1350	— 25
Gastrectomy	12	F 62 188	5600	—20%	4500	0	500	—250	+ 85	—265	70	350	75	495	11	500	+ 5
	13	M 79 155	4700	—500	4200	300	400	—250	+150	—110	90	160	100	350	8	500	+150
Abdominal-perineal resection of rectum	14	M 88 134	4000	—500	3500	0	500	—250	+250	—450	400	470	400	1270	36	1500	+230
	15	M 69 180	5400	0	5400	0	1000	0	0	—255	290	1415	50	1755	33	1500	—255
Vaginal hysterectomy and colporrhaphy	16	F 55 160	4800	—240	4560	450	450	0	0	—940	1580	210	250	2040	45	1500	—540
	17	F 37 127	3800	0	3800	350	350	0	0	—620	190	530	400	1120	30	500	—620
Cholecystectomy and splenectomy	18	57 137	4000	0	4000	400	400	0	+460	—110	300	310	30	640	16	1000	+360
Excision of hemangioma	19	10 mo. 25	750	0	750	150	0	+150	+100	0	10	135	35	180	35	260	+ 80
Plastic repair cleft palate	20	2 26	900	0	900	....	....	±0	+ 38	— 12	110	52	....	162	17	200	+ 38
Excision scar; graft	21	16 150	4500	0	4500	300	300	0	+400	—370	0	1000	100	1100	24	1500	+400
Hemorrhoidectomy	22	47 153	4300	0	4300	500	500	—200	0	—960	160	780	100	1040	24	260	+P.O.
Ligation esophageal varices	23	M 34 180	5400	—40%	3250	1000	0	+1000	+1230	—520	1400	270	100	1770	54	3000	+1230
Intramedullary nailing of femur	24	M 17 200	6000	—900	5100	1000	600	+500	+630	— 15	1150	930	20	2100	41	2500	+400
Hip nail	25	85 140	4200	—800	3400	1000	0	+500	+390	— 20	960	350	100	1410	41	1800	+390

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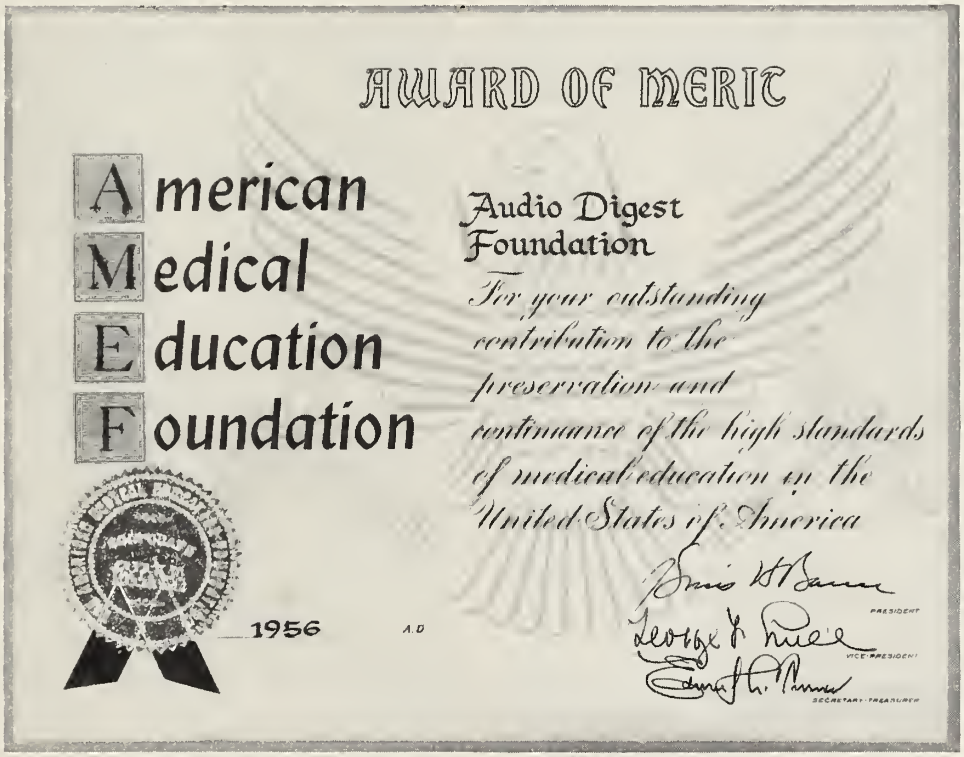
*Hemorrometer Loss-Replacement Plan. Planned surplus or deficit in relation to preoperative blood volume.

throughout. In Case 20, the plan was to maintain the preoperative blood volume unchanged throughout operation. The maximum recorded surplus and deficit show how well the plan was carried out.

Case 23 presents a situation in which the blood volume was rather severely depleted due to massive bleeding before operation. On the basis of the patient's low hematocrit and hemoglobin concentration, a preoperative replacement surplus of 1,000 cc. was indicated. Transfusion was started before operation began, and a surplus was maintained except for a half-hour period during which extensive bleeding resulted in a deficit amounting to 520 cc. (in reference to already depleted preoperative volume). By increasing the transfusion rate promptly, the deficit was met with minimum embarrassment of cardiovascular function.

220 Meridian Road at Park Avenue, San Jose.



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Edward C. Rosenow, Jr., M.D., Pasadena, chairman of the C.M.A. Committee on Postgraduate Medical Education, serves as editor-in-chief, with Claron L. Oakley as editor and narrator of the five different programs in General Practice, Surgery, Pediatrics, Obstetrics-Gynecology, and Internal Medicine.

Similar awards have been made to the California Medical Association for contributions to the A.M.E.F. in 1955 and 1956.

Extracutaneous Manifestations of Kaposi's Sarcoma

A Systemic Lymphoblastoma

ERVIN EPSTEIN, *M.D.*, Oakland

• Kaposi's sarcoma may affect any system of the body. Serious difficulties occur only when the heart, lungs or gastrointestinal tract are affected. Usually, involvement in other viscera causes no clinical symptoms.

This neoplasm is thought to be a low-grade lymphoblastoma. This idea of relationship is based on clinical and histologic association of Kaposi's sarcoma with the lymphoblastomas more commonly than would be anticipated from the rarity of the conditions under consideration. This concept is strengthened by the occasional seeming mutation of Kaposi's sarcoma into a lymphoblastoma. The associated reticuloendothelial hyperplasia in Kaposi's sarcoma is another link in the evidence of relationship.

One of the pleasures of dermatology is the occasional instance in which cutaneous manifestations are so accurately pathognomonic of obscure internal disease, that one is able to enlighten an internist or other overlapping specialist as to what ails a patient systemically. While most dermatologic patients have skin conditions only, there is the rare occasion when the dermatologist presents the key to unlock a visceral riddle. This has led to extensive study of such rare entities as necrobiosis lipoidica diabeticorum, acanthosis nigricans and a host of other cutaneous patterns in this category.

Kaposi's idiopathic multiple hemorrhage sarcoma is one of the more serious cutaneous entities. The possibility of visceral involvement has been recognized for many years by dermatologists but in a rather hazy fashion. Most skin specialists consider this condition to be comparatively benign, but it can be a threat to health and life.

The diagnosis of extracutaneous Kaposi's sarcoma must be made by x-ray examinations plus the observation of cutaneous lesions or by histopathologic study of surgical or postmortem specimens. Visceral involvement occurs in about 10 per cent of cases of Kaposi's sarcoma. According to Ellis,[9] 129,000 tumors were reported by 39 cooperating hospitals to the California Tumor Registry between 1942 and 1954. Only 21 cases of Kaposi's sarcoma were included, an incidence of 0.01 per cent. In only 14 of these cases had diagnosis been confirmed by histologic examination. In only one of these 14 was there visceral involvement. Undoubtedly visceral involvement would be noted in more cases if all patients with these tumors on the skin were followed to autopsy.

SITES OF INVOLVEMENT

Twenty-eight published reports of cases of systemic Kaposi's sarcoma were reviewed. The findings in those cases plus observations in seven cases reported for the first time in this communication constitute the material for this portion of the discussion.

The gastrointestinal tract was involved the most frequently (23 cases or approximately 66 per cent). The lesions may occur in any portion from the lips to the rectum. Nodules within the easily visible oral cavity are not unusual. However, the stomach and intestines are the most common sites. Most subjects with Kaposi's sarcoma on the skin complain of intraabdominal pain even though roentgen ray examination may be negative. As a rule, the lesions are multiple. For instance, Dillard and Weidman[6] found more than a hundred blood-red tumors along the intestinal tract in a patient at autopsy. Seagrave[21] mentioned observing 44 nodules in 14 feet of small intestine. The lesions tend to be nodular and rounded or conical or mushroom-shaped. They involve the submucosa, seldom invading the musculature, so perforation is unexpected. On palpation the neoplasms are soft or semicystic. When seen through the epithelial covering or on cross-section, the tumors may be white or flesh colored or marbled with red and white or streaked or speckled by brown. They may be as much as 6.0 cm. in diameter. Symptoms are few. Hemorrhage is one of the more common. It is remarkable that this does not occur more frequently, for the neoplasm is vascular and is covered by only a thin layer of epithelium. Intestinal obstruction is less common and when it occurs it is likely to be partial. The tumors grow slowly, permitting adaptation by the adjacent normal tissues. Also, as they are soft and compressible, obstruction is uncommon. Loss of weight and vomiting seldom results from these growths. Lesions in the intestinal

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Chairman's Address: Presented before the Section on Dermatology and Syphilology at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

tract seem to be more radiosensitive than those on the skin.

CASE 1. The patient was a 74-year-old man, born in Poland. About 20 years previously, Kaposi's sarcoma of the feet, legs, hands, wrists, ears, nose and tonsils had developed. After some five years, x-ray therapy had been given and the lesions were eradicated. There had been no cutaneous recurrence. The patient complained of "stomach" pains for at least 25 years. Gastrointestinal roentgen studies were consistently negative for abnormalities. The intraabdominal condition had been classified by various internists by a host of appellations ranging from "ulcer" to "amebiasis." The symptoms had not been disabling to the patient.

In June 1956, severe gastrointestinal hemorrhage from the rectum occurred. Tarry stools and bright red blood were passed. The patient was hospitalized immediately but despite conservative measures the bleeding continued. From 1,000 to 1,500 cc. of whole blood was required daily to maintain the blood volume and cellular constituents. The patient vomited once but there was no blood in the vomitus. X-ray studies showed a lesion in the second part of the duodenum. X-ray therapy to the abdomen was carried out and within 24 hours the bleeding stopped. There has been no recurrence to date.

Visceral lesions may be present without cutaneous tumors, as in the following case.

CASE 2. An 80-year-old man had had epigastric pain intermittently for ten years. A preoperative diagnosis of duodenal ulcer had been made. On surgical exploration, an area of thickening and scarring was found in the prepyloric area. Subtotal gastric resection and gastrojejunostomy were done. Upon microscopic examination of the removed specimen, a healed prepyloric ulcer and diffuse involvement of the stomach by Kaposi's sarcoma were observed. Acute hemorrhage developed on the sixth postoperative day. The possibility that the bleeding might be due to duodenal involvement with this tumor was considered. Roentgen irradiation, 1,000 r in divided doses was given to the area and the bleeding promptly stopped. Recovery was uneventful.

Next in frequency of involvement is the reticuloendothelial system. The liver was affected in 11 of the 35 cases reviewed, and the spleen in four instances. These structures are considered together since the changes are similar. Usually the involved organ is enlarged. Commonly, both viscera are affected in the same patient. There may be evidence of cirrhosis or even Banti's syndrome (see Case 4). Nodules of Kaposi's sarcoma may be noted in both organs. However, reticuloendothelial hyperplasia is not uncommon. The same changes may be found in the lymph nodes. These structures (superficial or deep) were observed to be enlarged in eight patients. Probably such enlargement is more frequent than is indicated by these figures. It occurs with or without ulceration of the cutaneous lesions. The changes found at operation or autopsy were identical with those seen in other organs of the reticuloendothelial system—that is, tumor or reticuloendothelial hyperplasia or both. It must be emphasized that hyperplasia of the reticuloendothelial system may occur in this condition in the absence of tumor nodules. The mediastinal or intraabdominal nodes were affected in most instances of visceral Kaposi's sarcoma in which surgical operation or autopsy was done.

CASE 3. A 53-year-old man, who had had extensive Kaposi's sarcoma of the arms and legs for 25 years was admitted to hospital two weeks after fever and coughing developed. On examination moist rales throughout his lung fields were noted. There was generalized superficial lymphadenopathy. The liver and spleen were enlarged. Moderate jaundice was present. Erythrocytes numbered 1,500,000 per cu. mm. of blood. At postmortem examination Kaposi's sarcoma of the skin, thyroid, ilium and lungs and of the hilar, retroperitoneal and iliac lymph nodes was observed.

Surprisingly, the genitourinary system was involved in seven instances—the kidneys in three cases, the testes in two and the urethra and bladder in one each. There were few signs or symptoms during life to suggest invasion of this tract. In the patient with the urethral lesion, stricture developed. In all instances, the involvement was manifested by tumors in the organs in question.

Bones were involved in six of the 35 cases here reviewed. This included the vertebrae, hands, legs and feet. These lesions were tumors arising from extension of the cutaneous masses or neoplasms developing independently within the osseous structure. According to Cajaffa,[3] bone involvement is frequent in Kaposi's sarcoma. He found it in all three cases he studied and expressed the belief it was due to increased circulation through the skeletal system resulting from overlying cutaneous tumors. However, he was concerned with osteoporosis which could have resulted from the age and general condition of the patients he studied. In the case reported by Ronchese and Kern,[17] cystic areas of rarefaction were found in the medulla of the fingers and toes. The investigators believed that such lesions were not due to increased circulation, since there was no rarefaction under large tumor masses, or to extension from overlying neoplastic growths since there were no such lesions over the rarefied areas. Most of the lesions of the bone were proved to be neoplastic by autopsy examination.

The respiratory system including the trachea, bronchi, pleura and parenchyma of the lungs was affected in eight instances. Commonly the lesions were multiple. The symptomatology was that of an intrathoracic tumor and depended on the exact location and size of the new growth. Cough, hemoptysis, pleurisy and loss of weight were common, but in some reported instances there were no such symptoms. Roentgen examination showed multiple lesions in those instances in which such investigations were performed. The conditions observed roentgenographically may simulate those of pneumonia, tuberculosis or tumor. Results of bronchoscopic examination, carried out in two cases, were negative, as were examination of pulmonary secretions by the Papanicolaou method.

Case 4. The patient, a 67-year-old man, had noticed weakness in 1947 and upon examination at that time enlargement of the spleen and anemia were noted. In 1949, Kaposi's sarcoma developed on the feet, legs and penis. The diagnosis was made clinically and confirmed by histologic examination. On examination in August 1951, in addition to the already noted conditions, enlargement of the liver was observed. About a month later, a splenic infarct developed, possibly secondary to cortisone therapy. At about that time a cough was noted, accompanied by mucopurulent sputum. The lung fields, which had been clear, now showed inspiratory rales and decreased breath sounds and fremitus over the right lower lung fields. Thoracentesis was carried out and 150 cc. of sterile straw-colored fluid was withdrawn. Roentgen examination showed a mottled process scattered throughout the right lung fields, suggestive of sarcomatosis. This condition improved with x-ray therapy. The patient also had a leukopenia (as few as 950 leukocytes per cu. mm.). About a year later, the patient killed himself by jumping out of a window. At the coroner's autopsy involvement of the right lung and peritoneum by nodules of Kaposi's sarcoma was noted and there was reticuloendothelial hyperplasia of the liver and spleen.

Cavities may be noted in the lung, as in the following case.

Case 5. A 76-year-old man, first noted multiple nodules on the left foot in 1950. In March 1954 a severe cough and hemoptysis developed. Roentgen ray examination revealed a diffuse infiltrating process throughout the right lung. Cavitation was a prominent feature. There was little or no response to x-ray therapy.

In April 1954, the patient was admitted to the hospital with left pneumothorax and incomplete aeration of the right lung due to partial occlusion of the main stem bronchus. This was followed by pronounced subcutaneous emphysema. The condition of the patient continued to deteriorate and he died in June 1954. At autopsy nodules and cystic cavities in the lungs, an ulcerated nodule in the stomach, 21 nodular, ulcerated or polypoid lesions in the jejunum and ileum, a nodule in the perirenal sac of the left kidney, a tumorous nodule in the pancreas and tumor involvement throughout the parietal region of the brain plus involvement of the cerebellum on the right side in the region of the dentate nucleus were observed. The lesions were histologically identified as Kaposi's sarcoma. In addition there was medullary hyperplasia of the adrenals, and reactive hyperplasia and tumor formation in the lymph nodes.

The endocrine system was affected in six cases—the pancreas in two, the thyroid in two and the adrenal glands in two.

Case 6. The patient, a 54-year-old man, had a lesion on the leg of three years duration which had been diagnosed by study of a biopsy specimen as an epidermoid carcinoma. The lesion responded poorly to irradiation. The condition of the patient deteriorated and he had lost 35 pounds in the two months before the present examination. Hemoptysis and cough had developed two weeks previously. On physical examination, rales and dullness at the base of both lungs were noted. The heart sounds were faint. Subcutaneous masses were noted on the abdomen and chest. There was pronounced enlargement of inguinal lymph nodes. The hemoglobin value was 35 per cent and erythrocytes numbered 1,900,000 per cu. mm. There were 18,350 leukocytes per cu. mm. At autopsy, tumors of Kaposi's sarcoma were observed involving the skin, lungs, small intestines (multiple nodules), omentum and both adrenal glands.

An interesting observation in this respect was the report by Hurlburt and Lincoln[10] pointing out that Kaposi's sarcoma may coexist with diabetes mellitus. The obvious inference is that the latter is secondary to the neoplasm. However, it seems unlikely that the tumor would destroy the entire gland or would selectively invade the islets of Langerhans. In the only one of the cases studied by Hurlburt and Lincoln in which autopsy was done, the changes in the pancreas were considered to be on a vascular basis. As Ronchese and Kern[18] pointed out, probably the relationship is more coincidental than real. None of the patients in the present study had diabetes. Involvement of the thyroid and adrenal glands was "silent" clinically also.

The heart was the site of tumors in five instances. Weller[23] expressed belief that cardiac involvement could be diagnosed clinically by a definite chain of symptoms and signs. He described this as an acute upper respiratory infection which became subacute and was manifested by cough, malaise, night sweats, sputum and hemoptysis. He mentioned edema of the face and cyanosis as other characteristics. Fever also was common—as high as 101°F. in some cases. In all cases in which x-ray examination was done, a tumor in the right auricle with pericardial effusion was observed. Choisser and Ramsey[5] reported two instances of tumor occurring in the right auricle, causing a ball-valve type of obstruction at the tricuspid orifice and bringing about rapid death. However, cutaneous lesions were not present in the cases reported by Weller and by Choisser and Ramsey, and it is possible the tumors were of another type, although histologically resembling Kaposi's sarcoma. In fact, the tumors in those instances might be better classified as angioreticuloendotheliomas rather than as Kaposi's sarcoma. Tumors may occur in any part of the heart in association with cutaneous manifestations and may cause pericarditis, effusion, heart block, arrhythmia or cardiac failure.

CASE 7. The patient, a 77-year-old man, had a long medical history of serious conditions requiring operation, and of refusal to submit to operation. Included were ulcerative colitis, acute cholelithiasis, adenocarcinoma of the rectum and prostatic hypertrophy. He also had complete heart block. Cutaneous nodules developed in 1948. The patient was admitted to hospital in February 1952 because of bloody vomitus of 24 hours' duration. On examination, it was believed he was uremic with hemorrhagic diathesis. Suprapubic prostatectomy was attempted but the patient died on the operating table. At autopsy involvement of the heart was noted (nodules in the fatty portion, in the left ventricle, and in the tricuspid valve), also nodules in the small intestines (especially in the duodenum) and tumor masses in the adrenals and in the lymph nodes. Microscopic examination showed all these lesions to be Kaposi's sarcoma.

The brain was invaded in one instance and the spinal column in one.

The conjunctiva was a site of involvement in one case.

Muscles are affected occasionally by extension from the skin or by independent tumors.

LABORATORY FINDINGS

Other than histopathologic and roentgen-ray examination, laboratory studies have not been productive of diagnostic tests. Mild to severe anemia is common. This may be the presenting symptom, as in Case 4. In the presence of pulmonary or, more commonly, gastrointestinal hemorrhage, hemoglobin and erythrocyte values may fall to extreme lows. In such instances, transfusions may be imperative. Mild eosinophilia is common. Leukocytosis—15,000 to 20,000 cells per cu. mm.—may be present, or there may be leukopenia, as in Case 4. Frequently there is an increase in monocytes and transitional cells. The differential count may show as many as 60 per cent Flarer cells (abnormal monocytic cells shifting toward the lymphoid series). However, this phenomenon is not found in all cases nor is the presence of this cell pathognomonic of Kaposi's sarcoma. The bone marrow may be hyperplastic, with an increase in mononuclear or reticuloendothelial cells.

Abnormalities in the urine, stool, vomitus and effusions are those associated with a tumor in the involved organ. Usually no abnormal cells are demonstrable by the Papanicolaou method. Results of liver function tests vary, but if there is severe hepatic involvement, damage may be indicated by such tests.

RELATIONSHIP TO LYMPHOBLASTOMAS

Since Kaposi's sarcoma, lymphoblastomas and leukemias are all unusual conditions, the frequent coexistence of these entities must be given consideration beyond that ordinarily paid to the presence of two or more of the commoner diseases in the same host.

CASE 8. A 73-year-old man, had respiratory tract disease diagnosed as bronchopneumonia in November 16, 1952. The temperature was 102°F. and coarse rales were heard in the right lung fields. These symptoms abated when penicillin was given parenterally. However, three or four days later there was a recurrence of fever and an area of consolidation was noted at the base of the lung on the right side. The conditions improved when aureomycin was administered by mouth, but the patient coughed constantly and commenced to expectorate large amounts of mucoid sputum tinged with blood. Upon roentgen examination, partial consolidation of the right lung and pleural effusion were noted. At about this time cutaneous lesions diagnosed clinically and by biopsy as Kaposi's sarcoma developed on the lower limbs and on the left lower eyelid. The lesion on the eyelid responded temporarily to x-ray therapy. The pulmonary condition persisted and the cutaneous lesions became more pronounced. The patient died September 9, 1953. At postmortem examination, Hodgkin's disease confined to the right lung and pleura was observed, in addition to the cutaneous lesions of Kaposi's sarcoma.

In a review of the literature in 1954, Pack and Davis[14] found reports of seven cases of Kaposi's sarcoma associated with Hodgkin's disease or leukemia or mycosis fungoides. They added reports of two additional cases in which giant follicular lymphoma (Brill-Symmers disease) was associated with Kaposi's sarcoma. Allen[1] stated that in a review of the literature he had found reports of 15 cases in which Kaposi's sarcoma and a lymphoma were present in the same patient. In five of those cases the lymphoma was Hodgkin's disease, in four lymphatic leukemia, in three lymphosarcoma, in two mycosis fungoides and in one myelogenous leukemia. Allen also noted that in seven of 41 cases of Kaposi's sarcoma studied at the Memorial Cancer Center, the patient had lymphoblastoma also. This is an association of about 17 per cent, a very high figure indeed. He reported on eight cases in which lymphoblastoma was present (the seven cases already mentioned and one other that he studied elsewhere). In four of the eight it was Hodgkin's disease, in two mycosis fungoides, in one lymphosarcoma and in one reticulum-cell sarcoma. Independent lesions of both diseases were found in some patients, while in others histologic study revealed changes of both conditions within the same cutaneous or lymph node tumor. The association of these two pathologic conditions in the same lesion was reported by Rosen[19] in 1943 and later (in the same patient) by Sachs and Gray.[20] Lane and Greenwood[11] reported on a patient with Kaposi's sarcoma, mycosis fungoides and lymphatic leukemia. Therefore, it seems possible that Kaposi's sarcoma may be a low-grade lymphoblastoma that may undergo mutation to resemble one of the other members of the group. It is well known that mycosis fungoides, Hodgkin's disease, lymphosarcoma and other more malignant forms of this group may do this. The frequency of hyperplasia of the reticuloendothelial system with lymphadenopathy, hepatomegaly and splenomegaly in Kaposi's sarcoma adds weight to this concept.

Histopathologists recognize four stages of Kaposi's sarcoma—inflammatory, angiomatous, granulomatous and sarcomatous. It is possible that a fifth stage, lymphoblastomatous, may occur in this condition.

To get the opinion of others, seven of the leading dermatopathologists were asked two questions: Is the histopathology of Kaposi's sarcoma and the lymphoblastomas so distinct that it would be impossible to confuse the two? Could it be that there is a fifth, a lymphoblastomatous, histologic stage in Kaposi's sarcoma?

On the whole, all seven preferred to believe that the conditions under consideration should be considered as distinct. Yet, selected sentences lifted out of the context of their replies might give a different interpretation. As examples:

Beerman[2] said, "You may be right that there is a fifth phase of Kaposi's sarcoma, but I have never seen it." To quote Winer,[24] "Now then, being all of reticuloendothelial origin [he was speaking of the lymphoblastomas and Kaposi's sarcoma], there are stages in these conditions which may be mistaken for each other." And again, "I have never seen a Kaposi's sarcoma go into a lymphoblastomatous phase, and I doubt that it could . . . yet, it is an interesting thought." Montgomery[13] observed, "Kaposi's sarcoma can terminate as a reticulum cell sarcoma or possibly even as a hemangio-endothelioma." And, "It is foolish to try to draw too sharp lines of distinction, as there are so many variants." Pinkus[16] contributed, "I would favorably consider the hypothesis that lymphoblastoma might develop in Kaposi's, possibly not as a fifth stage beyond the sarcomatous one, but rather as a side branch." Caro[4] said, "All aspects and interrelationships of the lymphoma group are still very confused." Only Lever[12] and Weidman[22] refused to consider this possibility. Weidman pointed out, "Once again, Kaposi's sarcoma being so essentially vascular, I think that one is stretching things too much to contend for a lymphoblastomatous stage on the basis of histologic changes." To summarize then, it is no more possible to relate the true lymphomas and Kaposi's sarcoma on purely histologic grounds than it is on the basis of strictly clinical changes. However, putting all the evidence together, there is a strong suggestion that this sarcoma should be included in the lymphoma group.

In separate correspondence regarding Case 1, Pack[15] stated, "I believe the two diseases (lymphoma and Kaposi's sarcoma) are related, that is to say, that they are both manifestations of a disorder of the reticuloendothelial system." Dorffel[7] felt that Kaposi's sarcoma was a reticuloendotheliosis on histologic evidence.

In order to establish whether Kaposi's sarcoma should be considered as a lymphoblastoma, one must define this group of diseases. Perhaps Eller's[8] concept is as good as any. He stated: "The term *lymphoma* has been applied to a group of diseases, the etiology of which is unknown. They are characterized by proliferation of lymphatic or reticuloendothelial tissue which may occur in the skin as well as in any other organ of the body." Acceptance of this definition would suggest that Kaposi's sarcoma should be included in this group after consideration of the previously offered facts.

All in all, there is too much evidence to ignore the possible relationship between the lymphoblastomas and Kaposi's sarcoma. If Kaposi's sarcoma cannot undergo mutation into a fifth or side stage that histologically resembles a lymphoblastoma—and it has not been established that this is impossible—then it might have common etiologic factors with these other poorly understood neoplasms. Certainly, all these conditions can be grouped under the heading of reticuloendotheliosis. Every factor that has been considered would lead to this conclusion.

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ACKNOWLEDGMENT

To gather this series, it was necessary to enlist the cooperation of others. Included in the group who kindly gave permission for use of some of their material are Drs. Gerson Biskind, Alvin J. Cox, Harris Fishbon, Bruce Friedman, Joseph Levitin, Joseph Millikin, Leonard Ortega, Joseph Sadusk, John Sampson and Daniel Tucker.

For Your Patients—

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Historically, the California Medical Association, of which I am a member, was one of the nation's pioneers in the field of medical care insurance through its sponsorship of the California Physicians' Service. Blue Shield-CPS is a "service plan" as the name implies. It provides medical care rather than a specified sum of money which, in case of illness, you would collect from an insurance company's "indemnity plan."

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The Use of a Medical Interviewer

An Assistant Who Saves the Physician Time and the Patient Money

LOUIS SHATTUCK BAER, M.D., Burlingame

• For dealing economically yet effectively with patients who are being made sick by psychic burdens rather than by "simple" organic disease, a trained interviewer who follows a formal outline in obtaining information from patients, can be of great assistance.

The physician who makes use of the services of such an interviewer should select a person with good qualifications for the job and then train her for it. It is also up to the physician to get the patient to accept the idea of interview by such an assistant.

After the interview, the interviewer prepares a typewritten summary for the physician for use as a guide in discussing means of treatment and prevention of psychosomatic illness with the patient.

The method saves the physician much time, the patients much money, and has resulted in many gratifying therapeutic successes.

MANY PHYSICIANS nowadays are struggling with the problem of dealing well and economically with the seemingly increasing number of patients with no serious organic disease but who are constantly tired, tense, worried, fearful or unhappy or are beset by a combination of the symptoms that are recognized as "psychosomatic" in origin.

Proper diagnosis and effective treatment for such a patient entails either long knowledge of his medical and personal history on the part of the physician, or time-consuming—hence costly—interview and history-taking. It is the unhappy, upset, fretful patients, requiring much more time than patients with "simple" organic disease, who put the heaviest load upon a physician. Moreover, and to a measure at the root of the whole matter, the patient who needs so much of the physician's energy and patience is often unable to pay for the time needed to interview and treat him properly. It is not economically possible for a physician to listen patiently to his symptoms and to set about relieving them, all for a five-dollar office visit. Yet the history-taking and the listening have diagnostic and therapeutic values and a conscientious physician is reluctant to deprive a patient of them.

ATTEMPTED SOLUTIONS

Many attempts have been made to solve the problem of giving proper care to these patients.

Self questionnaires such as the Cornell Medical Index have been used to get a large number of facts and a general picture of the patient without taking the physician's time. Requesting the patient to write out his "life history" and chief troubles has been tried by some investigators, including the author. Supplying the patient with a dictaphone device into which he can "talk out" his worries for future transcribing and reading by the physician is another method. Group therapy is being tried to break through the financial and time barrier of good psychotherapy. A few senior physicians have junior associates to do their listening for them, but this is unusual in a "family doctor" practice.

The commonest means available to a hard pressed family physician is to refer these patients to a psychiatrist. But there are not enough good psychiatrists and the cost is too often prohibitive. Furthermore, the "stigma" attached to going to a psychiatrist is still felt by some patients as a strong objection. Today in many communities "clinical psychologists" are undertaking the care of patients of this kind with or without the approval of the physician. Beyond the pale of medicine are such people as "professional listeners" (so listed in the New York City telephone directory), fortune tellers, soothsayers of all types and deliberate charlatans.

Patients of the kind here considered are sick and they do need help. If the family physician cannot or will not supply it, they will seek it elsewhere. They are likely to be critical of the physician when they feel they have been given short shrift in his office, and they are often vocal-at-large in their complaints, to the detriment of the profession as a whole.

THE MEDICAL HISTORIAN METHOD

The author has used, with success, a method involving the services of a person who is hired to interview the patient and to assemble a pertinent history.

Usually it is easy for a physician during the course of the first routine history and physical examination to tell which patient is going to require more than an average amount of listening time. To such a

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Submitted December 28, 1956.

patient I will say, *after* the routine history and examination and necessary laboratory tests are completed, "Mrs. Smith," (approximately 80 per cent of the patients I send to my medical historian are adult married women), "I believe that the chief factor in your illness is prolonged and moderately severe nervous tension. In my twenty years in medicine I have particularly interested myself in this problem and I have here my own list of its usual causes." I then show them my six page single spaced master list of "causes of nervous tension." I go on to point out that if I carefully went over this long list with them it would take several hours and that I have to charge $25 an hour for my time. I then tell them that in order to save them what I consider a needless expense, I am asking them to see my medical historian who will spend two, three or four hours with them listening to their story and getting for me the facts I want to know. I stress that the historian will give no advice and offer no opinions: she is just my reporter, a helper in getting the facts. I tell them that usually her report is more valuable to me than the x-ray films and laboratory tests.

I go on to say that for her services I charge only $4 an hour for the time it takes her to get the story, adequately summarize it and transcribe it. The average cost to the patient, I point out, is less than the cost of an x-ray examination of the stomach. Sixteen dollars average.

Finally I state that after I have my historian's report, I will spend one, two or three half-hour office visits with the patients analyzing the causes of her symptoms and making suggestions as to the cure and prevention of them. Patients are told that all interviews with the medical historian take place in the historian's home. This has many advantages, including complete quiet, comfortable and pleasant surroundings (tea is served at the midpoint of an interview so that the patient and the historian have a chance to rest and relax), reduction of overhead by avoiding the use of an expensive office, and great convenience for the historian and the patient since neither is confronted with parking problems or deadlines. In addition it is often difficult for a male patient to take two or three hours away from work for an interview of this type. As my historian's husband is always home in the evening, there is no "chaperoning" difficulty about her making an appointment for an occasional male patient to come in the evening or on weekends for an interview.

RESULTS

The results obtained with this method of diagnosing the causes of patients' nervous symptoms have been most gratifying to me and most enthusiastically and gratefully received by the patients. It has spared me the task of trying to "hear someone out" with a waiting room full of other patients. It has relieved me of the energy-sapping job of listening attentively and sympathetically for one or two hours at a stretch to the endless tales of human trial and suffering, of tension and fatigue that is so much a part of and the cause of illness today. It provides me with an admirably written, organized and summarized account of each patient for whom I find this type of history desirable, so that at any time in the future I have the facts recorded, should my memory fail.

Finally, it has proved an excellent means of determining which patients truly need a psychiatrist, for if the patient is not making progress after two or three hours with my historian and one, two or three half-hour sessions with me, psychiatric evaluation is indicated.

REQUIREMENTS FOR A GOOD HISTORIAN

The requirements for a good medical historian are many and are important. The ideal historian is a happily married woman of 50 to 70 years, whose children are grown but whose husband is living, who has herself at one time held a job outside the home, who has had a college education or its equivalent, who is warm-hearted, understanding, patient and well-groomed. Her home, if it is to be used for the interviews, should be quiet and decorated in taste. She should be a good typist. There are many women who can meet these standards, who would enjoy this kind of work and who are ready and waiting to be trained by a physician to help with patients, as has been outlined here.

The working outline which my historian uses as her guide is as follows:

SPECIAL HISTORY FORM

Name of Patient.................................. *Address*..................

Age........ *Occupation*................................. *Date*......................

FACTORS FROM WITHOUT

1. *Inherited Traits and Tendencies*
    (1) Father: Describe as to occupation, general health, disposition, sobriety, ill-tempered, worrier, strict, possessive, religion and race.
    (2) Mother: Same.
    (3) Brothers: Same and include present status, such as happily married, successful, relation to patient.
    (4) Sisters: Same as brothers.
    (5) Grandparents: Same where known.
2. *Traits and Tendencies Acquired in Childhood and Young Adulthood*
    (1) Parents' relation to patient
        a. Wanted or unwanted child.
        b. Closest to whom.
    (2) Happy or unhappy home.
    (3) General financial circumstances.

(4) Changes of residence.
(5) Nervous traits, such as nail-biting, bed-wetting, stammering, etc.
(6) Overly protected.
(7) Particularly happy or unhappy events.
(8) Schooling.
    a. How far?
    b. Who stopped?
    c. How well did you do?
    d. Good and poor subjects?
    e. Popular or lonely?
    f. Socially active or inactive?
    g. Friends; many, few?

3. *Work*
    (1) What type of work do you do?
    (2) Do you like your work?
    (3) How many hours a week do you work?
    (4) How much commuting?
    (5) What work outside of job?
    (6) How long have you held present and previous jobs?
    (7) Do you like the people you work with or work for?

4. *Rest, Recreation, Vacation or Change*
    (1) Do you have a rest period each day?
    (2) Do you have a day or ½ day of rest or change each week?
    (3) When was your last vacation? Was it restful? Was it successful?
    (4) What hobby or recreation do you have? (Physical or intellectual?)
    (5) How many hours sleep at night?

5. *Marital Problems or "Love Affair"*
    (1) How long have you been married?
    (2) Are you happily married?
    (3) Is there lack of love, appreciation, understanding, respect, or companionship in your marriage? (Give examples).
    (4) Are you in love with your spouse?
    (5) Is there a reciprocal feeling of love?
    (6) If there are marital difficulties, what do you think are the chief reasons?
    (7) Why did you get married? (Love, security, pregnant).
    (8) What do you think your spouse can do to improve matters?
    (9) What do you think you can do to improve matters?
    (10) What are the causes of most of your arguments?
    (11) Are you in love with anyone else?
    (12) Are you a good (father, mother).
    (13) Is your spouse a good (father, mother).
    (14) Have you and your spouse ever separated?
    (15) History of previous marriage, if any . . .
    (16) Have you ever had violent arguments?
    (17) How many children have you? What are their ages and sex?
    (18) Do you think your children are any more of a problem than the average child?
    (19) Do you argue about the children?
    (20) Were your children wanted and planned for?
    (21) Have you ever had an abortion?
    (22) Were you pregnant prior to your marriage?
    (23) Does anyone else live with you?
    (24) Do you like the same kind of recreation?
    (25) Which do you think the hardest job and most fatiguing . . . earning a living or running a house?
    (26) How long after you were married did you begin to be dissatisfied with your marriage?
    (27) Do you wish to continue living with your spouse for any of the following reasons?
        a. Because there are children.
        b. Because separation or divorce is against your principles.
        c. Because divorce or separation would injure your business or social standing.
        d. Because you still love your spouse.
    (28) Knowing what you know now, would you wish to marry if you were unmarried?
    (29) List your own defects . . . your own virtues, and your spouse's defects and virtues.

6. *Money Problems*
    (1) Are you worried about money problems? Are you in debt?
    (2) Do you think you spend your money wisely?
    (3) Are you troubled with too much money or too little money?
    (4) Do you or your spouse gamble to excess?
    (5) Do you argue about money?
    (6) How is the money managed in your home?

7. *Sexual Problems*
    (1) Are your sexual relations satisfactory or unsatisfactory? Climax?
    (2) Do you use some method of birth control?
    (3) Is there disagreement between you because of your contraceptive techniques?
    (4) About how often do you have relations?

8. *Friends or Social Activity* (too much or too little)
    (1) Do you have many friends?
    (2) Do you think your friends are the right kind for you?
    (3) How often do you see them?
    (4) Do you agree as to your choice of friends?
    (5) How many times a week do you entertain or go out?

9. *Problems with Children*

10. *Problems with Parents or In-laws or Siblings*

11. *Religious differences and background*
    (1) What church . . . how devout?
    (2) Does religion have much or little influence on your life?

12. *The Problems of Alcohol and Other Habits*
    (1) What is your alcoholic intake?
    (2) How much do you smoke?
    (3) How much coffee do you drink?
    (4) Do you use sedatives or sleep medicine?
    (5) Any problem with your spouse in this regard?

13. *Extracurricular Activities* (too many or too few)
    (1) P.T.A., clubs, drives, etc.
    (2) How many groups are you active in?

14. *Any Other Problems Not Mentioned Above*

FACTORS FROM WITHIN

1. *Personality Defects* (have patient give examples to indicate presence or absence of these defects)
    (1) Too sensitive.
    (2) Perfectionism.
    (3) Self-pity.
    (4) Resentment . . . of individuals, or events, or conditions.

(5) Immaturity.
  a. Too much concern with one's self . . . give examples.
  b. Poor sense of values . . . inability to get pleasure from simple things.
  c. Too dependent.
  d. Unadaptable.
  e. Too competitive.
  f. Belligerent or aggressive.
  g. Lack of patience.
  h. Open-mindedness.
  i. Expects too much and expects to have to give too little.

(6) Worrisome.
  a. Cancerphobia, "sophomore's disease," fearfulness, guilt feelings, feelings of unworthiness, or other worries not mentioned so far.

(7) Disposition.
  a. Unhappy, too serious, no sense of humor, despondent, suicidal, too critical.

(8) Others . . .
  a. Expects too much out of life.
  b. Jealousy or envy or hate or resentment towards people or events.
  c. No enthusiasm.
  d. No self-assurance . . . feelings of inferiority.

UNSATISFIED FUNDAMENTAL HUMAN NEEDS

1. Lack of a feeling of being needed or useful.
2. Lack of a sense of reasonable security.
   (1) Financial security.
   (2) Marital security.
3. Lack of a satisfying religion or philosophy in life. (Purpose of living . . . why are we here?).
4. Lack of reciprocal love, affection, companionship and sexual life.
5. Lack of feeling of self-respect and self-assurance.
6. Lack of troubles, sorrows and problems (some are necessary as the only means of improving human character).
7. Lack of responsibilities.
8. Lack of a reasonable unattained goal to strive for.
9. Lack of education.
10. Lack of suitable housing.
11. Lack of fundamentally sound mind and physique.
12. Lack of appreciation.

QUESTIONNAIRE FOR VETERANS OF WORLD WAR II

1. When did you enlist?
2. Draft or volunteer?
3. When discharged?
4. Reasons for discharge?
   a. Medical or time up?
   b. If medical, what cause?
   c. Any compensation . . . what for . . . how much?
5. Where on duty? (List all places).
6. Rate or rank on entering?
7. Rate or rank on discharge?
8. If not in war, why?
   a. Age.
   b. Health.
   c. Family.
   d. Work.
9. Illnesses in service? (List all and length of time).

* * *

Are there any problems, worries or important facts we have not discussed?

Are there any problems we have not discussed that you wish to discuss privately with the doctor?

411 Primrose Road, Burlingame.

CASE REPORTS

Hemotherapy in Suspected Dermatomyositis

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Opportunities to evaluate therapy in a disease as rare as dermatomyositis are infrequent. Apparent benefit from a new form of treatment, the intramuscular administration of concentrated leukocyte suspensions, in a patient with dermatomyositis unresponsive to all conventional therapy is reported here in the hope that further trial in other patients will define the value of this therapeutic approach.

Present therapy in dermatomyositis is unsatisfactory. Before the advent of corticotropin (ACTH) and cortisone, benefit was obtained in an occasional case with the use of testosterone and tocopherols. Cortisone and related steroids have proved a mixed blessing, since the control of acute inflammatory manifestations is often counterbalanced by serious hazards attendant on prolonged administration.[2] Not every patient with a collagen disease will respond to steroids, and the incidence of refractoriness rises with increasing duration of therapy.

Kurnick[7] recently described a new therapy for systemic lupus erythematosus, consisting of the intramuscular administration of leukocytes, either in whole blood or in concentrated suspension. The rationale of this therapy is of considerable interest. The "L.E." phenomenon involves ingestion by a polymorphonuclear leukocyte of a nuclear mass (from another leukocyte) which has been rendered structureless by depolymerization of desoxyribosenucleic acid (DNA). Depolymerization of DNA is accomplished by an enzyme, DNase, which is present in serum and probably in all cells. DNase is normally held in check by an inhibitor present in leukocytes. Destruction of DNase inhibitor permits the L.E. phenomenon to take place. This destruction is thought to be due to a serum factor (possibly plasmin) which gains entry to the cell with the aid of the specific L.E. gamma globulin described by Haserick and co-workers.[4]

A second function of the injected leukocytes has been described.[7] The specific L.E. gamma globulin described by Haserick[4] is thought to be an antibody against mesenchymal cell membranes, and the stroma of the injected leukocytes, which are of mesenchymal origin, may serve a therapeutic purpose by adsorbing the circulating abnormal globulin. Increased concentrations of gamma globulin are found with regularity in every collagen disease, and these proteins may (in a manner similar to that of L.E. gamma globulin) participate in the genesis of the disease with which they are associated.

The intramuscular administration of 30 cc. of compatible blood from a normal donor will supply the recipient with 150 to 300 million leukocytes. Separation of leukocytes from blood makes it possible to give a dose of 500 million leukocytes in a volume of approximately 5 cc.

Success with hemotherapy has been described in systemic lupus erythematosus, even in steroid-resistant cases,[7] but its usefulness in other collagen diseases has not been assessed. The sequence of events in the following case suggests that hemotherapy may be effective in dermatomyositis.

REPORT OF A CASE

A 30-year-old Caucasian housewife had had recurrent epistaxis since the age of four years and irregular and profuse menstrual bleeding since menarche at age 13. At the age of 14 bleeding of the gums, petechiae and multiple ecchymoses developed. When the patient was examined in 1940 at the University of California Medical Center, San Francisco, hemoglobin content was 9.8 gm. per 100 cc. of blood and erythrocytes numbered 3.6 million per cu. mm. Leukocytes numbered 3,800 per cu. mm. and platelets 60,000 per cu. mm. The sedimentation rate was 22 mm. in one hour, the icteric index 5 units, prothrombin concentration 100 per cent, clot retraction index 29, bleeding time 30 minutes, and clotting time (Lee White) 9 minutes. A capillary fragility test with a blood pressure cuff inflated to 200 mm. of mercury was positive (50 petechiae). The patient was treated conservatively and was discharged in two weeks.

Two years later, in 1942, appendectomy and removal of an ovarian cyst were carried out. The patient then had recurrence of epistaxis, petechiae, ecchymoses and heavy vaginal bleeding. She was readmitted to the hospital in January, 1943, and at that time the hemoglobin was 8 gm. per 100 cc., erythrocytes 2.8 million per cu. mm., and leukocytes 6,000 per cu. mm. The clotting time was 10 minutes and the bleeding time was over 30 minutes. Pro-

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From the Sansum Clinic (Domz and Fay) and the Sansum Clinic Research Foundation (Hoag), Santa Barbara.

Submitted February 27, 1957.

thrombin concentration was 100 per cent. Platelets numbered 67,000 per cu. mm. of blood.

On February 3, 1943, splenectomy was done. The spleen was slightly enlarged (220 grams) and had three small accessory spleens at the pedicle. There was overgrowth and frequency of germinal centers, the sinuses tended to be empty, and the lining cells were prominent. The microscopic diagnosis was: "Spleen compatible with thrombocytopenic purpura."

At the time the patient was discharged two weeks after operation, the bleeding, clotting and prothrombin times were normal and platelets numbered 200,000 per cu. mm.

In September, 1949, the patient was admitted to Mercy Hospital, Bakersfield, because of recurrent menorrhagia. Dilatation and curettage were done and hypertrophic endometritis was noted. The patient was discharged but was readmitted to the hospital three days later with complaint of fever, headache, backache and pelvic pain.

Upon physical examination, stiffness of the neck and back and tenderness in the left adnexa were noted. A neurologic consultant noted right lower facial weakness, tendon reflexes sluggish in the upper extremities and absent in the lower extremities, and abdominal reflexes absent. Lumbar puncture was carried out. The pressure was above the normal range. The fluid was clear. It contained 10 mg. of protein per 100 cc. and 5 leukocytes per cu. mm. A coccidioidin skin test was strongly positive (a 3 by 4 cm. area of erythema and induration at 48 hours).

The patient had diarrhea on the second day in hospital but recovery thereafter was uneventful and she was discharged in two weeks. The final diagnosis was probable encephalitis, type undetermined.

The patient was readmitted to Mercy Hospital in Bakersfield in December, 1953, for dilatation and curettage because of prolonged vaginal bleeding. The pathologic report again was: "Hypertrophic endometrium."

In January, 1954, the patient noticed blanching of the fingers on exposure to cold, with occasional digital cyanosis and numbness. She was unable to tolerate tolazoline (Priscoline) by mouth and refused sympathectomy.

She was admitted to Santa Barbara Cottage Hospital November 28, 1954, ten months after the onset of Raynaud's phenomenon, with pain and swelling in the right arm of three weeks' duration. Upon examination edema and cyanosis of the entire right upper extremity were noted. A thrombus was palpated in the brachial and axillary vein. The body temperature was 102.2° F. The hemoglobin content was 9.3 gm. per 100 cc. of blood. Erythrocytes numbered 3.2 million per cu. mm. and leukocytes 12,200 per cu. mm. The results of urinalysis were within normal limits. Hot packs were applied to the arm and heparin was administered. The patient was dismissed in two weeks. During this episode there was transitory recurrence of thrombocytopenia, the platelet content falling to 78,000 per cu. mm., but a normal number of platelets was present at the time of discharge. Mild lymphedema and residual tenderness persisted in the right arm.

During the last six months of 1954 typical rheumatoid arthritis developed in the hands and knees. There was satisfactory response to small doses of prednisone.

In February, 1955, the patient noted a subcutaneous lump 2 cm. in diameter in the left upper quadrant of the abdominal wall. It was soft, tender, and of violaceous hue. Biopsy was done in October, 1955, and the histologic sections were examined by three pathologists. Three different diagnoses were given: Focal scleroderma, rheumatoid nodule, chronic arteritis.

The patient was admitted again to Santa Barbara Cottage Hospital April 21, 1956, with complaint of fever and pain in the chest and arms. The illness had begun two days earlier with pain in the muscles of the neck and a temperature of 101° F. There was rapid spread of pain from the neck through the shoulders and arms, and within a short time muscular pain was generalized throughout the body. Use of the muscles intensified the pain and the patient was unable to stand, to take a deep breath or to swallow, because of pain.

When examined, the patient was lying limply in bed, avoiding the slightest motion. The blood pressure was 150/95 mm. of mercury, the temperature 101.6° F., the pulse rate 108 and respirations 20 per minute and somewhat shallow. No abnormalities were noted in the head and neck except for many enlarged tender lymph nodes in the anterior and posterior cervical chains. There was diffuse and exquisite tenderness of all skeletal muscles—so acute that severe pain was elicited by simple passive motion of any of the extremities.

Infectious mononucleosis was suspected, but the heterophil agglutination titer was 1:28 on two determinations during the first week. The patient said she had not eaten undercooked pork. At the time of admission the hemoglobin was 12.3 gm. per 100 cc. of blood. Erythrocytes numbered 4.3 million per cu. mm. and leukocytes 22,500 per cu. mm.—with 58 per cent segmented neutrophils, 13 per cent banded forms and 29 per cent lymphocytes. The sedimentation rate (Westergren) was 74 mm. in one hour. The antistreptolysin titer was 125 Todd units. Urinary excretion of creatine was 193 mg. in 24 hours. The result of an L.E. cell test was negative, as it had been in February, 1956. No pathogenic organisms grew on a culture of blood. The serum transaminase was 110 units (normal 10 to 40 units). Although a biopsy from the left gastrocnemius muscle was negative and creatinuria had not been established, a diagnosis of dermatomyositis was made on the basis of the clinical features and the elevated serum transaminase. Response to therapy with salicylates and small doses of prednisolone was fair. The serum transaminase decreased to 44 units. On the eleventh hospital day the patient was discharged.

Although the patient was confined to a wheelchair, muscular pain became more severe during the first week at home and prednisolone dosage was increased to 30 mg. per day. The patient had little relief, and testosterone and tocopherols were added to the therapeutic regimen. She remained incapacitated with diffuse muscle pain, tenderness and cramping for the next six weeks. Urinary excretion of creatine rose to 1750 mg. per 24 hours on June 25, supporting the diagnosis of dermatomyositis.

The patient entered Santa Barbara Cottage Hospital for the third time July 3, 1956, with a carbuncle on the left buttock, which was surgically drained. During the week following this minor operation, inflammation of the muscles progressed at an accelerated rate until the patient was again completely immobilized by pain. Urinary creatine excretion (Folin method) was 1670 mg. per 24 hours and by the Taussky[9] method it was 7000 mg. per 24 hours. Prednisone dosage was increased by steps to 90 mg. per day, with only slight relief of pain and no appreciable effect on the profound muscular weakness.

Atrophy of the interosseous muscles of the hands became visible, and serial measurements of the circumference of the extremities gave additional evidence of loss of muscle mass. Dermal involvement was mild, consisting of pruritic irregular erythema and edema of the face, neck and anterior chest lasting one week. After six days of high dosage prednisone therapy, mental hyperactivity and emotional lability were severe enough to suggest impending psychosis, whereupon the dosage of prednisone was decreased to 60 mg. per day. Testosterone and tocopherols had been given continuously, with no apparent benefit. The patient was bedridden and unable to feed herself.

Therapy with leukocyte concentrate was begun July 30, in a dosage of 500 million white blood cells intramuscularly three times weekly. Concomitantly, prednisone was gradually withdrawn. Subjective subsidence of pain occurred within a week, but objective improvement did not occur until the tenth day, after the fourth dose of leukocyte concentrate. At this point there was a rather abrupt decrease in muscular tenderness. For the first time manual compression of extremity muscles did not evoke pain. Improvement was rapid thereafter. The patient began to move about in bed more freely, resumed feeding herself and was able to walk three weeks after the change in therapy.

During the third week of hemotherapy a carbuncle appeared on the posterior aspect of the right shoulder. Response to several antibiotics was indolent, but administration of 30 cc. of gamma globulin was followed by rapid improvement.

The patient was dismissed on the fifty-first hospital day, and hemotherapy was continued on an outpatient basis thrice weekly. During the next six months, injections of leukocyte concentrate were gradually reduced and were discontinued in January, 1957. Urinary creatine excretion was within normal limits (less than 400 mg. per 24 hours) after October, 1956, and in November the patient returned to full duty as a housewife.

Approximately two months following discharge from the hospital, there was a recurrence of rheumatoid arthritis, with mild pain, swelling and stiffness involving the fingers, wrists and elbows. This was not accompanied by any exacerbation of polymyositis, and creatine excretion continued a downward trend. Chloroquine by mouth, 250 mg. three times daily, brought the arthritis under control. Raynaud's phenomenon was still a troublesome symptom at the time of this report.

DISCUSSION

It would seem reasonable to believe that the many unusual events in this patient's medical history are related phenomena, and that thrombocytopenic purpura, encephalitis, rheumatoid arthritis, Raynaud's phenomenon, axillary thrombophlebitis and dermatomyositis were various manifestations of what may be termed a "collagen disease diathesis." Kampmeier[5] emphasized that more than one collagen disease may occur in the same patient, sometimes concurrently. Brunson's recent studies[1] showed that lesions characteristic of several different collagen diseases can be induced simultaneously in a single animal. Nevertheless, Klemperer, who originally promoted the concept of collagen disease, stressed the desirability of making a specific diagnosis of a distinct collagen disease whenever possible.[6]

From a diagnostic standpoint the serum glutamic oxalo-acetic transaminase (aminopherase) determination in this case was uniquely valuable in that it gave support to the clinical diagnosis of dermatomyositis at a time when the urinary creatine excretion and muscle biopsy were still within normal limits. Other investigators[8] have described the diagnostic value of serum transaminase determinations in dermatomyositis.

It is noteworthy that rheumatoid arthritis in the case here presented, flared during convalescence from dermatomyositis and was not prevented by the hemotherapy that was being administered. Use of chloroquine for control of arthritis was prompted by a desire to avoid a return to steroid therapy, and was suggested by the good results reported by Dubois[3] in the treatment of systemic lupus erythematosus with various antimalarial drugs.

Although a disturbance of DNA or DNase does not occur in dermatomyositis, it is of interest that the serum DNase activity of the patient in the present case showed, during treatment, the same downward trend noted in patients with lupus erythematosus who respond to hemotherapy. The serum DNase was 65 ($X10^{-4}$ units per ml.) in July (before therapy), 52 in August, and 28 in December.*

Recovery in this case of steroid-resistant dermatomyositis cannot with certainty be attributed to hemotherapy, since spontaneous remissions occur in dermatomyositis as they do in any collagen disease. Wider evaluation of hemotherapy in the collagen diseases would appear desirable, since steroid resistance is an increasingly frequent problem.

317 West Pueblo Street, Santa Barbara (Domz).

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*DNase determinations courtesy of Dr. N. B. Kurnick.

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Diffuse Cavernous Hemangioma of the Rectum and Rectosigmoid

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CAVERNOUS HEMANGIOMA of the rectum and rectosigmoid is a rare condition. This presentation is concerned with the diffuse expansive type. single contiguous according to the classification of Gentry.[7] In the forty cases reported[1,2,4,6,7,10,12,13] it seems any or all layers of the bowel may be involved.

The commonest symptom in all cases is bleeding. Bleeding is intermittent and may occur in varying degrees of severity in the same person—from bloody spotting or staining with stools to massive hemorrhage. It is important to note that the history of bleeding usually goes back to childhood. Diagnosis may be simply made. as a rule, with the sigmoidoscope, through which may be seen dilated bluish veins beneath a beefy red mucosa. Single or multiple phleboliths seen in a barium enema x-ray study may suggest the presence of the condition. Sections of the lesion usually consist of dilated blood vessel spaces of variable size and shape, lined by endothelium with little fibrous connective tissue. In the case reported herein, the early sigmoidoscopic and x-ray evidence was not sharp and clear, although in retrospect certain clinical observations, noted in writing, should have received more attention.

Since the number of reported cases is small and the majority of patients were treated in the days before the use of antibiotics and before our present day knowledge of the use of blood and electrolytes, very few were reported cured; and some of the early treatment such as irradiation and cauterization appears bizarre now. Kausch[11] reported a case in which the patient was considered cured after a five-stage surgical procedure. Hunt[9] carried out a staged abdominoperineal resection of rectum and rectosigmoid. In the case reported by Bancroft,[2] and later brought up to date by Jaques[10] the superior hemorrhoidal vein was ligated, then was injected distally with sodium salicylate and a colostomy established. Twenty years later an abdominoperineal resection was done for continuing symptoms and complications.

The following is the fortieth case reported of diffuse, expansive[7] cavernous hemangioma of the rectum and rectosigmoid. It will be seen from the nature of the present case that this condition may well be a trap for the unwary.

REPORT OF A CASE

A white man, 37 years of age was first observed March 10, 1952, with principal complaint of anorectal pain and bleeding with bowel movements, intermittent since early childhood. The pain was burning and cutting in character, was experienced with bowel movements only and had become very severe during the preceding month. The bleeding which occurred during bowel movements was sufficient to drip and run into the bowl. Protrusions had been present before hemorrhoidectomy that was done in 1946. The patient said bleeding had never stopped since that operation. The physician had discharged him about a month after the operation. stating he could not find the cause of the bleeding.

Upon proctologic examination it was noted that the perianal skin was edematous, weeping and excoriated, with large folds. A small fibrotic nodule (which probably had developed from hemorrhoidectomy) was observed both anteriorly and posteriorly in the perianal skin. On digital examination the sphincter was noted to be in moderate spasm. There was no tenderness and no masses. Upon anoscopic examination, considerable postoperative scar tissue in the anal canal and a large hemorrhagic anterior internal hemorrhoid actively oozing venous blood were observed. The mucous membrane of the distal rectal ampulla was rather redundant. Sigmoidoscopic examination was unsuccessful because of inadequate preparation, but even without it the situation seemed rather obvious and arrangements were made for hemorrhoidectomy.

On the day of operation, erythrocytes numbered 4.44 million per cu. mm. of blood and the hemoglobin content was 13.6 gm. per 100 cc. The differential count of leukocytes was within normal limits.

Caudal anesthesia was administered and sigmoidoscopic examination to 25 cm. above the anus was

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Submitted February 2, 1957.

carried out. The mucous membrane appeared to be normal throughout with the exception of that at the level of 14 cm., where it was noted that there were about ten or fifteen flat, sessile, pebble-like structures under the mucous membrane, without ulceration. These felt rather firm through the instrument and were considered at that time to be either lymphoid tissue or adenomata. They were hard to see, for they changed the appearance of the overlying mucous membrane very little. Multiple punch biopsy specimens were taken and sent to the laboratory. No significant bleeding took place from the site of the specimens but the areas were nevertheless fulgurated. Hemorrhoidectomy then was carried out, oxycel gauze was placed over the operative area and the patient was returned to bed in excellent condition. Barium enema x-ray study was planned for the immediate future. No complications having developed, the patient was discharged from the hospital on the third postoperative day.

On the ninth, seventeenth and twenty-first postoperative days the patient was returned to the hospital because of rectal bleeding. Hemoglobin content decreased to 10.0 gm. per 100 cc. of blood and erythrocytes to 3.021 million per cu. mm. Venous oozing from the operative wounds was found. The patient was treated with sedation, blood transfusion, packing, fulguration, suture, vitamin K, ascorbic acid and a smooth, low residue diet. Significant bleeding was controlled but slight bleeding with bowel movements continued.

On May 12, 1952, which was the eighteenth day after the third admittance to hospital, multiple punch biopsy specimens were removed for the second time from the pebble-like area 14 cm. above the anus. The tissue was removed with some difficulty because of what seemed to be its flat and deeply located character. The areas were fulgurated. The pathologist reported that these specimens and the similar ones previously removed were rectal mucosa. Barium enema and double contrast air study was performed on May 19, 1952, and the report was as follows: "Routine barium enema and extremely detailed double contrast study failed to demonstrate the 'polyp' which was seen sigmoidoscopically 12-14 cm. above the anus. The study is entirely normal." The patient at this time was referred for hematologic consultation. The consultant's conclusion was that bleeding was due to local tissue factors.

Intermittent bleeding with bowel movements continued, about 1 tablespoonful daily. The patient, finally resigned to the continuation of such bleeding due to unknown factors, was discharged on June 30, 1952, with a wound that was quiescent but not quite healed.

Two years later, the patient again appeared for examination after an incident of special note. He said that since he was discharged from the hospital in 1952 bowel movements had always been associated with slight but not significant bleeding. A week before the present visit he had passed a hard stool and blood had "poured" from the rectum. Ten or 15 minutes later another such episode occurred. Upon examination, including sigmoidoscopic inspection to a distance of 25 cm. from the anus, it was observed that the operative area was healed. Multiple sessile polypoid structures were visible for a distance of 18 cm. proximal to the pectinate line. Some appeared solid and adenoma-like, others were soft and blackish, resembling varicose veins. A multilobulated venous tumor about 1 cm. in diameter was seen at 18 cm. This is the first time clear evidence was visible of the venous problem involved. Barium enema study with pneumocolon was done at this time and the report was as follows: "In the distal sigmoid, two polyps were identified. One of these located on the right posterior wall of the distal sigmoid (at about a level 30-35 cm. from the anus) was broad based with its base measuring 2 cm. and extending into the lumen of the colon for a distance of 1.5 cm. The other was distal to this and was at a level about 20-22 cm. from the anus. It was smaller but also broad based. The base measured about 1 cm. and the height a little under 1 cm. All these findings were beautifully recorded on the routine film studies as well as on numerous spot films." The diagnosis of cavernous hemangioma of the rectum now seemed apparent.

A few days later the patient was referred for general surgical consultation, with a diagnosis of cavernous hemangioma of the rectum. The consultant confirmed the diagnosis and arranged for operation.

The patient refused any radical procedure and consented only to a minimal procedure of either local excision or blood vessel ligation, or both. Laparotomy and colotomy were carried out. The following is quoted from the operative record: "The descending colon and sigmoid were normal up to the top of the ampulla, and from there down numerous blood vessels and varicosities were seen in the wall of the rectum but also extending anteriorly to involve the peritoneum covering the bladder for a short distance. The bowel peritoneum was opened on either side of the intestine, and as far as we could see there were many of these varicosities that involved the whole rectum. In order to reduce the blood supply to the bowel as much as possible the superior hemorrhoidal artery was isolated and simply ligated in continuity. The sacral 'polyp' could be felt in the upper rectum. A longitudinal incision was made into the rectum, the bowel opened, and the 'polyp' excised. It grossly resembled a large hemangioma that protruded into the lumen of the bowel. Another small similar hemangioma was excised a little farther down. These were the hemangiomata that had been identified by x-ray. The whole rectal mucosa presented mainly rough protrusions into the lumen of the bowel being caused by the large vessels and blood spaces beneath the mucosa. No further surgery was done." The pathologic diagnosis was: Angiomatosis, rectum. Ossified phlebolith, angioma, colon. Lipogranuloma, lymph node.

The patient was discharged from the hospital on the seventh postoperative day.

When next observed some six months later in January of 1955, the patient said that for about two months after the operation no rectal bleeding occurred. Then, upon passing a hard stool, bleeding into the bowl occurred as previously, except that the amount of blood was considerably less than before. Bleeding in small amounts then became a daily occurrence.

Upon proctologic examination, it was observed that the perianal skin showed many redundant folds with a suggestion of underlying varicosities. The sphincter had good tone. There was no tenderness and there were no masses clearly palpable. There were, however, what seemed to be barely palpable varicosities in the left lateral distal ampulla. Anoscopically visible at about 5 cm. above the anus there were moderate sized discrete varicosities left posteriorly and right posteriorly. Anteriorly there was a diffuse bulge about 2 cm. in diameter. Sigmoidoscopic inspection to a distance of 25 cm. above the anus was carried out. The pathologic changes observed were confined to the area up to 17 cm. The area between 17 cm. and 25 cm. appeared normal. Between 16 cm. and 17 cm. there were only two or three polypoid varicosities. They were about 0.75 cm. in diameter and each was on a base of the same size. From 16 cm. down to the pectinate line there was a diffuse "peanut brittle" or "nut cluster" effect, with diffusely spread varicosities varying in size between 3 mm. and 1 cm. in diameter. The polypoid lesions were of various colors—pink, red, blue and purple—the hue depending upon the degree of the overlying inflammatory process, on the amount of covering mucous membrane or on depth of location. Active bleeding of venous capillary type was seen.

The patient's next visit was in June 1955. He said there had been gradual lessening of bleeding and lengthening intervals of absence of bleeding, sometimes as long as seven to ten days. He said that he works at very hard labor, that the previous day he had lifted over 2,000 pounds of meat within a few hours, and that the increase in venous pressure caused by exertion did not bring on bleeding. Passing a hard stool still would cause bleeding, he said, which might continue for several days. The patient said soft stools did not cause bleeding and that he could tell by the "feel" of a stool as it was being passed whether or not bleeding would follow. On the morning of the present visit the patient had a bowel movement after breakfast, had flushed the colon twice afterward with enemas of clear water and had seen no blood. Upon examination the same conditions as were noted in the preceding examination were observed except that the lesions were in a quiescent state without bleeding.

The patient was last seen on January 28, 1956. Following the examination in June, 1955, the patient had no bleeding until October 1955. From then to the present, there had been slight intermittent bleeding with bowel movements. Sigmoidoscopic examination to 25 cm. above the anus showed no change from the conditions observed the preceding June. The pathologic condition had always been explained to the patient in great detail and he had been so thoroughly instructed that he had apparently learned to manage successfully. He still refused any radical operation which would require removal of the rectum.

COMMENT

Many of the cases of cavernous hemangioma of the rectum and rectosigmoid previously reported were apparently easily diagnosed on visual examination. A number were diagnosed only postmortem. In the case herein described the earliest examination revealed only the vaguest "pebbling effect" underlying a normal mucous membrane with actively bleeding internal hemorrhoids. These were minimal changes, considering the fact that symptoms had been present since childhood. Biopsy was attempted twice and was unsuccessful. Only on hindsight was significance attributed to the "pebbling effect."

Although it has been stated that diffuse cavernous hemangiomas have a tendency toward invasion and that the tissue resembles erectile tissue.[4] these characteristics were not observed in the present case. The sinuses were lined by endothelium, and the overlying mucous membrane, although not specifically involved, was thinned appreciably in the areas where the projecting sinuses were large.

Excision of the involved bowel is the treatment of choice. In the foregoing case this treatment was not carried out because of the patient's refusal.

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Toxic Bite of a Spider, *Cheiracanthium Inclusum* Hentz

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In California it is generally conceded that *Latrodectus mactans* (Fabricius), the black widow, is the only spider dangerously venomous to man. The fairly common reports by persons not versed in the subject, of cases of less severe spider bites, in which the arthropod is not available for identification, are usually attributed to the black widow spider or to stings or bites from various insects such as bees, wasps, scorpions or kissing bugs. Hence it is of particular interest to record a decidedly venomous effect from the bite of a common North American spider previously regarded as harmless.

One of the authors (W.C.R.) was wakened at 3:45 a.m. by a sharp penetrating pain below the outer margin of the right eye. Clapping a hand to the site, he felt a lump and suspected a hematoma from a ruptured capillary. Holding his hand in place until he reached a mirror, he found a small spider with the chelicerae so firmly imbedded in the skin that a slight pull was needed to detach it.

Cold compresses applied to the area of the bite for an hour did not alleviate the pain, nor did taking 2.0 gm. (30 grains) of acetylsalicylic acid over a four-hour period. Within three hours after the bite, throbbing pain had spread over the cheek to the right lower mandibular area. By 10:30 a.m. the pain was still intense but seemed to be abating, and by 4 p.m. it was gone. The skin of the affected area was not painful when touched and there was no inflammation or evidence of proteolytic action. The venom appeared to have only a local neurotoxic effect.

The spider was identified by Dr. Willis J. Gertsch of the American Museum of Natural History as an immature male of *Cheiracanthium inclusum* Hentz, of the family Clubionidae. It is an inconspicuous, pale yellow spider, less than one quarter of an inch long. In view of its wide occurrence throughout North and South America and its frequent appearance in houses, it is surprising that there are no previous records of its biting man. Subsequently 14 specimens were found in the house where the bite occurred. Apparently they came from shrubbery surrounding the house. It is presumably not a pugnacious species, as a recently acquired active specimen could not be persuaded to bite man when applied to an area of thin skin.

Dr. Gertsch said that the bite of the genus *Cheiracanthium* has been observed to be not completely inoffensive.[1] The bite of the European *Cheiracanthium punctorium* (Villers) causes pain comparable to the sting of a wasp, sometimes associated with fever and other symptoms.[1] Similarly spiders of the species *Cheiracanthium diversum* L. Koch, in the Hawaiian Islands, have bitten a number of persons, causing moderate to grave symptoms.[1]

Human sensitivity to arthropod venom varies greatly among individuals. For example the bite of *Triatoma protracta* (Uhler), a blood-sucking reduviid bug, may produce systemic, prostrating effects in some persons and no observable symptoms in others. Some persons are probably similarly hypersensitive to the venom of spiders such as *Cheiracanthium inclusum*, and the effect reported here may fall in this category. The alarming and excruciatingly painful reaction indicates that closer scrutiny should be given to other reports of spider-bite injury. The fact that the black widow appears to be the only dangerously venomous spider in California does not preclude the probability that the bites of other spiders may cause considerable injury.

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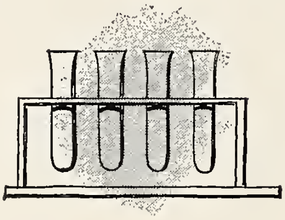

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Submitted April 24, 1957.

California
MEDICINE

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EDITORIAL

Welfare and Medicine

In a few weeks a new law will go into effect in California, a law providing for medical care to certain classifications of public welfare recipients.

The new law results from the enactment by Congress of Public Law 880, which made funds available to pay for medical care of recipients of welfare benefits under programs for children or aged, blind or crippled persons. A matching state law, providing matching funds, assures a total of some $29,000,000 for medical care payments up to next June 30, end of the state and federal fiscal years.

Some 450,000 Californians are expected to receive the benefits of this new statute, under which a total of six dollars a month will be available for adults and three dollars a month for children. It should be borne in mind, however, that these monthly sums do not go directly to the beneficiary but are pooled in a fund from which the state may pay for services rendered.

In California the Council of the California Medical Association has expressed the opinions (1) that the program should be directed primarily at the payment of physicians' fees for home and office calls, (2) that a fee schedule should be agreed upon, and (3) that California Physicians' Service be named the fiscal agent for the statewide program.

These policies stem from the facts that there is obviously not enough money in the program to go beyond the payment of visit fees and that hospital care of these welfare patients is normally expected to take place in county hospitals. In addition there is an apparent need for a fiscal administrator.

Under the new program the state and federal governments, working jointly, will assume a certain portion of the medical care needs of some three per cent of the people of the state.

This portion, small though it may seem, should not be overlooked as an addition to other medical care programs which make the patient a ward of government. Workmen's Compensation, Veterans' Administration, merchant marine and Medicare programs—each has its own part of the population looking to government for medical care.

With successive groups added to the government's list of medical beneficiaries, many physicians are asking today if the socialization of medicine is not being put into effect piecemeal. Where legislation asking for an overall program of governmental medical care has not been able to muster the votes to pass, it is daily becoming more apparent that a similar program is in reality being enacted by a step by step process.

Governmental welfare programs are one of the phenomena of the past quarter-century in this country. Where, before the great depression of the early 30's, the states and communities had been counted upon to take care of their own needy people, the New Deal plans have remained on the law books and have been expanded to an ever-widening circle of recipients. In times of financial stress, such as the depression that was visited upon the country, almost any legislation can pass which promises to shift a load from a given group of citizens to another. The one carrying the burden is likely to vote in favor of practically anything which will take the strain off his own back.

With each succeeding step in the process, questions are asked anew: Where are we drifting? Obviously, more and more state and community functions and responsibilities are being taken over by central government, whether by design or circumstance. Communities have apparently lost their power to resist the blandishments of "free" money from the federal government, even though there is always the knowledge that nothing is free and that government spending covers only a portion of the local taxes collected to make such spending possible.

Estimates as to the loss of money on its round trip from here to Washington vary widely. However, where new agencies must be set up, staffed, administered and expanded in true bureaucratic fashion, there is bound to be a loss in the taxes collected for any specified purpose.

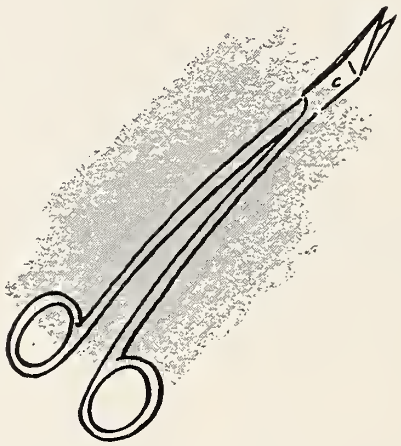
To date in this country, the expanding circle of centralized government has not entered into nationalization of the basic industries. Perhaps such a proposal would be too much for Washington to swallow but it is not less than reasonable to wonder where the expanding government will stop. Each new step makes the next one easier to sell and to assimilate.

Under the new welfare health program, medicine is again faced with the need of dealing with government. In this instance the California Medical Association has been fortunate to have available its own Relative Value Studies. These serve well as a starting point in the development of allowances for professional services. They tend to establish reasonable basing points and to eliminate grossly unreasonable charges, whether they be too high or too low.

The medical profession has for many years followed the practice of reducing or foregoing fees where the patient is unable to meet the going rate. In the new welfare medical care program this procedure will probably be followed.

Representatives of the Association and of the California State Department of Social Welfare have already conferred on the numerous problems involved in putting the new program into effect. While no concrete report is yet available on these deliberations, it can be stated that the C.M.A. Council has agreed that for a large group of welfare recipients, reduced medical fees are in order.

This represents a continuation of medicine's time-honored policy of contributing its services to those in need. Whether the contribution be in whole or in part, a noble tradition will be upheld.



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OF THE CALIFORNIA MEDICAL ASSOCIATION

PROFESSIONAL LIABILITY PROBLEMS IN THE PAST

The Graves Malpractice Case

Several months ago, Dr. Richard P. Wheat of Los Altos gave me a reprint which he had resurrected from a "housecleaning" of the Lane Medical Library. To one interested in the field of professional liability, the article by the famous Dr. Levi C. Lane, published in 1886, was fascinating. It is reprinted here that California physicians of today may read and ponder it.

Here is a physician's vehement description of a nineteenth century "mal-practice" suit (circa 1876) against a Petaluma physician. This story could have been written yesterday, about one of this year's malpractice cases. Except for the nineteenth century language of the reporter—and the amount of the damages sought—the story would be the same. The "misguided" patient unrealistically expected a perfect result. The "tortured" defendant physician's colleagues agreed and testified that the patient was treated properly, that a better result could not have been obtained. An offer by the plaintiff to make a small compromise settlement was refused. (Even then, physicians were saying "millions for defense, not one cent for tribute.")

"Local envy and personal hate," as well as profit, were cited as the motivation of physicians who aided the "prosecutors." The plaintiff's attorneys, "inspired by . . . empty purses," fetched the hostility of every honorable physician.

The Graves case was not yet settled when this chronicle was published. Also not settled, after nearly seventy-five years, are some of the basic problems of professional liability: Unrealistic patients who expect more than medicine can give them, unwarranted criticism by a physician of his colleagues, unerring justice for physicians in malpractice actions. It should also be noted that plaintiff's attorneys are still undeterred by the medical profession's hostility.

Dr. Levi Lane's story of the Graves case is more than interesting reading. It is also a challenge for us to change our thinking and to begin to apply more scientific modern techniques to a continuing human relations problem. The old techniques were not effective in 1876; they are not effective in 1957.

Joseph F. Sadusk, Jr., M.D.,
Chairman, Medical Review and Advisory Board

MEMORIAL WREATH FOR THE PROSECUTION IN THE GRAVES MALPRACTICE SUIT

By LEVI C. LANE, M.D.,

Professor of Surgery in Cooper Medical College, San Francisco

"Quod medicina non sanat, ferrum sanat; quod ferrum non sanat, ignis sanat."—*Aphorism of Hippocrates.*

The medical profession of California have watched with special interest the case in which Dr. G. W. Graves, of Petaluma, was sued, over a year ago, for alleged malpractice. The cause of action was based on the charge of improper treatment of an injury to the ankle of an old woman—one of those injuries where, despite the utmost care and skill on the part of the surgeon, the perfect use of the joint can never be regained. Though it was proven by written authority, as well as by prominent expert evidence, that the doctor had treated the case properly, and had obtained as good results as are ever gotten in such injury; yet the legal managers of the prosecution, uninfluenced by these facts, of which they became cognizant at the very commencement of the trial, have waged against the defendant during this long period a most merciless legal warfare, and one that has

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Reprinted from *Pacific Medical and Surgical Journal* and *Western Lancet,* Vol. 29, 1886.

had but one parallel in the medical annals of this coast. And the outrage was further intensified by the fact that the plaintiff's family had received unremunerated services, during many years, from Dr. Graves.

Early in the case a compromise could have been effected, but the defendant, with more regard for his professional honor than for his purse, refused every overture of the kind; and, aided by the moral as well as the financial support of the profession, and inspired by the principle which guided our forefathers in their struggle, viz., *millions for defense, but not a cent for tribute*, he has made a resistance that deserves all praise, for a compromise, though it would have saved him money, would have been the signal for many similar suits against others.

The case has been tried three times, the first trial resulting in a verdict for eight thousand dollars against the defendant. This verdict, so at variance with what should have resulted from the evidence, awakened in the mind of almost every physician in this State a feeling of intense indignation and the determined resolve, that the outrage should not be submitted to. At once, contributions were freely offered for the defense, amounting in the aggregate to nearly two thousand dollars. With this money additional legal counsel was employed, viz.: Hall McAllister, Esq., and Dr. E. R. Taylor of this city; and, after no slight effort, the shameful verdict was set aside, and the case re-opened for trial.

At the second trial no decision was arrived at, the jury being divided; but at the third trial justice was triumphant, and victory crowned the side of right in a full acquittal of Dr. Graves.

This verdict, so gratifying to the defendant, is almost as much so to the general profession, of which several of the leading members, besides liberally contributing money, spent some days of precious time in attendance at court, to reach which, the most of them were compelled to travel long distances. But all will now feel more than repaid in the consciousness of having aided in rolling back the flood of injustice which was threatening to ingulf in ruin a professional brother. And besides this feeling of happiness, their united action has taught the lesson, that should a like instance recur, they will be quite as ready for concerted defense again; for, though the lance which they have lately so successfully wielded is laid in its rest, yet all will see to it, that its point is kept sharp, and ready for action. All may be assured that this serpent, the foul offspring of communism, as often as it may be evoked from its slimy pool by legal incantations, will be returned again to its festering home without doing other violence than leaving its fangs in those who may conjure it forth. Whenever this Hercules, in the form of a malpractice suit, is sent forth in quest of golden apples, the profession are determined that he shall return, as on this occasion, laden only with apples of Sodom, whose bitterness will leave an interminable writhing in the mouths of those who sent him on such mission.

The fancy of Schiller has painted a strange scene, in which young Moor is studying how he may shorten the life of his father; he decides the surest plan would be to suddenly fill the old man's heart with intense happiness, and then, in a moment, to overwhelm him with grief and despair; in the course of this suit, this experiment, instead of in fancy, has been exhibited in reality. What wild joy the actors in this prosecution must have tasted when they obtained a verdict for eight thousand dollars; and with what heartaches they must have been tortured when they saw the last glitter of those ducats returning to the pocket of their rightful owner! Some curious psychologist would do well to chronicle how much their lifespan has been shortened at its distal end by such experience.

Great praise is due to the attorneys who aided in the defense: Mr. McAllister, too long ago recognized as *facile princeps* at the bar of California, for any new salutations of praise to touch his ear, deserves thanks for snatching some time from his overworked hours, and ably cooperating in the management which led the way to final victory in the case; and, especially, is high credit due to Edward R. Taylor, who, though a graduate in medicine, has chosen the law as his profession; to his untiring work the final result is mainly due; for, besides bringing that special knowledge, which is so valuable in such a case, he threw his heart and soul into the matter, and worked with the zeal and enthusiasm of a personal friend of the medical profession.

The history of this case would be more satisfactory if it could close without reference to certain medical men who allied themselves with the plaintiff, and, as far as it was possible, aided in the prosecution. Some of these men are residents of San Francisco, and gave their evidence by deposition; but the two who were especially active in this work—unnatural as throwing stones at a mother—were present at the trial, and mingled in their evidence an amount of malevolence which has brought on them the universal contempt of the medical profession. Their position now finds a proper parallel in the case of the traitor Benedict Arnold, who, after the close of our Colonial war, being asked by some European for introductory letters to the New World, replied, that he was the only man in Europe who had no friends in America. As Ulysses, in his visit to Hades, being repelled by his old enemy Ajax, learned that the resentments of the dead are eternal, so these men will find that those of the living are no less so. Should they desire to return to the profession, whose altar they have sullied, ignominy, as a flaming sword, will forever prevent them. Such action, whithersoever it may turn, will find no rest; for should it think to find a screen for its offenses in the flight of years, it will search in vain, since in the untrodden labyrinths of futurity, there will be found no hidden recess where the finger of infamy will not follow it; nay, more, death itself will give such action no refuge, since DISGRACE and DISHONOR will carve their initials upon its gravestone as an unfading epitaph.

SUPPLEMENT

The above was written and intended as a memorial offering to the defeated in this important trial; but while it was in the hands of the printer, and on the eve of appearing, information was received that the plaintiff had asked for a new trial. But as a pleasure deferred is not a pleasure lost, so the solace which might have been theirs at an earlier hour, has been but briefly deferred.

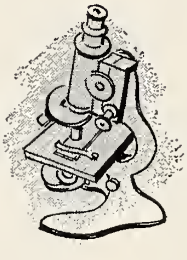
Not content with a verdict which has given satisfaction to all fair-minded persons, not satisfied with the unmerited scourging with which they have tortured the defendant for many months, yet unconvinced that the support which the profession had given the defense was founded on the knowledge that he was wholly innocent of any neglect of duty to the patient, the prosecution, finding it hard to relinquish a prize, which at one time seemed plainly to be theirs, have asked for a reopening of the case. And thus they would add another scene to this merciless drama, in which honest thrift and prudent industry have so long been held the counterpoise in the scales of justice, of dissipation and improvidence. But this last menace must expire as a menace, for death has too effectually touched the vital centers of this many headed serpent to admit of resuscitation, in fact, this final effort has evidently been made, more for the purpose of annoyance than with any hope of success, since it has been the boast of, at least, one member of the prosecution, that a purpose of the suit was to humiliate the profession which had so persistently defended one of its members. To what a depth of moral degradation the spirit must have fallen, that can indulge in such fiendish malice. The espousal of the cause of Dr. Graves by the profession was, without doubt, the most praiseworthy movement which can be found in the medical history of the Pacific Coast. Men who have repeatedly declined tempting fees to make professional visits in the country, on this occasion, forgetting every selfish interest, abandoned their business, and made great personal sacrifices. And for what object? To defeat justice as the prosecution cunningly put it in their argument? No, it was to promote justice and prevent its miscarriage. And all this was done without a single hope of reward, either direct or contingent. In fact, the thought of profit and gain entered the minds of the medical witnesses who testified in behalf of the defense, quite as little as it did the head of Dr. Graves, when he went to the house of this misguided woman to treat her injury. And were those witnesses now sued for their pains, the outrage would find a parallel in the treatment which the physician has received from the hands of this woman.

Indeed, the errands of mercy and charity in which the physician's fees are daily wearied tend to banish from his heart that selfishness which is so prominent an element in human nature; nay, more, to lift and place him on a plane of self-abnegation, quite unknown to those who have not been so tutored. To support this assertion by pertinent proof, what greater example of altruism and extinction of self can be found than the fact that no physician is permitted to conceal or patent any discovery in medicine, and if he does so, he is guilty of an ethical offense which excludes him from all association with his fellows. Adherence to this rule, which goes a step beyond the golden, has cost many a medical inventor and discoverer a prospective fortune. Had Jenner patented vaccination, today his heirs would have the wealth of Rothschilds. And yet of this profession, whose cardinal principle has ever been to work for the world rather than for itself, a member has been singled out whose excellent attainments and skill, acquired in civil and military practice, have never been questioned, and were especially illustrated in the good results obtained in the treatment of this woman; and because he sought to vindicate his honor as a physician and refused to surrender his purse when parties, brigand-like, were seeking, under guise of law, to wrest it from him, he has been pursued with fell diligence, and, for month after month, scourged with a whip of scorpions. Unmoved by the sight of this "man of unsubdued spirit, bravely struggling against adversity, a spectacle in which God himself takes delight," to quote the words of Eugene Sue, the prosecution have added to the enormity of their offense by declaring that they intended to humiliate the profession who, at the call of their victim, came to his aid. They have probably learned that the seeds of humiliation, if they would flourish, must be planted in far other soil.

As the parties of the prosecution have failed in every object for which they contended, the question arises, what have they done for themselves? If historic indifference, under the guidance of impartial criticism, cast its eye on the disconsolate group, and indulge in a few observations, the following facts will be learned. The plaintiff, no longer needing her crutch or malposition of the limbs, has won something, but her attorneys, after having worked with the energy that is inspired by empty maws and empty purses, and having seen the prize that was once won fall from their grasp, now stand as "men who have had their losses." Nay, more, the hostility which their envenomed action has awakened in the mind of every honorable physician in this state, has projected a long penumbral shadow athwart the orbit of their future lives.

As to the medical prosecutors, who listened to the temptation to gratify local envy and personal hate, and to do so, like the young of the spider, turned on and devoured their mother, but little additional need be entwined in the wreath already woven for them. None will envy them the satisfaction they have had in torturing a professional brother. To mitigate the bitterness of the cup, which the hand of retributive justice surely lifts to the lips of him who unjustly injures, they should hasten their repentance, and as visible evidence of the same, they should sprinkle their heads with the ashes of their burnt honor, and clothe themselves in sackcloth woven from the tattered remains of that once spotless robe with which they were invested when they were admitted to the profession of medicine, and took on themselves its vows.

How different in contrast stands the defendant! With arms well tutored in the practice of defense, with patience begotten of prolonged discipline, gladdened by the approval of friends, and the encouraging salutation of every upright member of the medical profession, with heart full of content, and warmed with emotions of triumph in a just cause, he now, with fearless spirit and armor well tried at every point, stands erect, and, come what may, he will go forth an assured victor in the struggles of life.



In Memoriam

Bliss, Guy L. Died in Claremont, June, 1957, aged 79. Graduate of Rush Medical College, Chicago, 1908. Licensed in California in 1921. Doctor Bliss was a retired member of the Los Angeles County Medical Association and the California Medical Association, and an associate member of the American Medical Association.

◆

Cohen, Emanuel S. Died in Atherton, May 31, 1957, aged 38. Graduate of Columbia University College of Physicians and Surgeons, New York, N. Y., 1943. Licensed in California in 1947. Doctor Cohen was a member of the San Mateo County Medical Society.

◆

Cohn, Mendel Leopold (Lee). Died March 16, 1957, aged 66. Graduate of the University of California School of Medicine, Berkeley-San Francisco, 1917. Licensed in California in 1917. Doctor Cohn was a member of the San Francisco Medical Society.

◆

Farrage, James. Died in Orange, June 6, 1957, aged 78. Graduate of the University of Louisville School of Medicine, Louisville, Kentucky, 1911. Licensed in California in 1922. Doctor Farrage was a retired member of the Orange County Medical Association and the California Medical Association, and an associate member of the American Medical Association.

◆

Jesberg, Simon. Died in Los Angeles, June 24, 1957, aged 71. Graduate of the College of Physicians and Surgeons, Los Angeles, 1913. Licensed in California in 1914. Doctor Jesberg was a retired member of the Los Angeles County Medical Association, and an associate member of the American Medical Association.

◆

Koskela, Albert L. Died in San Francisco, July 2, 1957, aged 37. Graduate of the University of Minnesota Medical School, Minneapolis, 1944. Licensed in California in 1945. Doctor Koskela was a member of the Santa Cruz County Medical Society.

◆

McFarland, George E. Died in Inglewood, June 23, 1957, aged 45. Graduate of the University of Minnesota Medical School, Minneapolis, 1942. Licensed in California in 1942. Doctor McFarland was a member of the Los Angeles County Medical Association.

◆

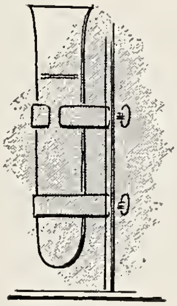
Salvin, Monte. Died June 19, 1957, aged 54. Graduate of Jefferson Medical College of Philadelphia, Philadelphia, Pennsylvania, 1928. Licensed in California in 1929. Doctor Salvin was a member of the Los Angeles County Medical Association.

◆

Sipman, Harold Irwin. Died in Oakland, June 20, 1957, aged 48, of respiratory failure. Graduate of the University of California School of Medicine, Berkeley-San Francisco, 1934. Licensed in California in 1934. Doctor Sipman was a member of the Alameda-Contra Costa Medical Association.

◆

Thomson, William L. Died December 3, 1956, aged 58. Graduate of Stanford University School of Medicine, Stanford-San Francisco, 1927. Licensed in California in 1927. Doctor Thomson was a member of the San Francisco Medical Society.



WOMAN'S AUXILIARY
TO THE CALIFORNIA MEDICAL ASSOCIATION

These Are Your Wives

It was my privilege to attend the 34th annual meeting of the Woman's Auxiliary to the American Medical Association held in New York in June. Along with the convention itself, and the parties planned, is that period of gathering with old friends and new acquaintances, resulting in the interchange of ideas. Many of the thoughts we come home with are not part of the convention at all, but usable ideas as employed by other groups, such as the following article which was written by Mrs. Richard Stover, third vice-president of the Woman's Auxiliary to the American Medical Association.

"Many organizations have auxiliaries, but as a whole, no professional group has as strong an auxiliary, made up of their wives, as does the medical profession through the Woman's Auxiliary to the American Medical Association, nor is there any that operate under as many or as good democratic procedures. In essence, what the Auxiliary does, in all instances from county up to the national level is to operate as an autonomy with its programs and projects and policies set up under guidance of each segment's own advisory board.

"One particular difference between the medical Auxiliary and other auxiliaries is that its parent body is almost entirely made up of men who are specialists in one thing—MEDICINE, and who, because of the intensive training that medicine has taken have not had the time to broaden their education into other fields. There are exceptions, but they are very, very few—the majority of physicians having spent most of their time in learning medicine to the exclusion of everything else.

"Their need for other skills, however, is less because they do have these skills available to them through the women they married—and in organized medical auxiliaries in every state it is possible to find practically every skill present in at least one doctor's wife.

"Let me give you some examples: Here is a doctor who has been made chairman of the publicity committee for a convention. He knows nothing about writing for newspapers even if he had time to do it. In his county medical society auxiliary are three women who have had journalism in college and real experience in writing for newspapers. This was a wise doctor—he used the journalistic experience of the women and obtained good publicity. Here is a doctor who needs to plan an exhibit and staff it for a county fair. He too, is a smart man, so he asks the president of his county auxiliary for a committee to help him out. They view exhibits, help decide which the public would like the best and then set up the staff to service the exhibit. All this has saved time for the doctor and enhanced the chances of the exhibit's success; for the auxiliary president has chosen from her membership those who know public relations and visual aids to help select the exhibit and then, those who staff it are trained in handling the public. Yes, the county fair exhibit was a success.

"Then too, there is the legislative committee of a county medical society who felt the need of some of the techniques and tools for best approaching the problems of offsetting built up public opinion that had been demanding legislation that would be of no benefit to the health of the public. They too, called upon wives of doctors to help them. It helped; the legislation was defeated.

"Go through many of the professions and skills that others have—that the doctor won't have since it was not included in his medical education. There are school teachers, nurses, public relations experts, publicity experts, public speakers, economists, accountants, lawyers, engineers, architects and many others. Now, look at the members of your medical auxiliary—somewhere in that membership will be the wife with the profession or tool that is needed to give help to the medical profession.

"Like the man who wanted happiness, these things frequently do not just come to you, you must reach out and get them. Your medical auxiliary is prepared to help you in any way it can—if it doesn't come to you—reach out and get it. Let us keep in mind that 'health is a joint endeavor'."

Mrs. Leonard D. Offield
President, Woman's Auxiliary
to the California Medical
Association.

NEWS & NOTES

NATIONAL • STATE • COUNTY

ALAMEDA

Dr. Frederic M. Kriete, assistant chief of the Division of Preventive Medical Services of the State Department of Public Health, was named deputy state health director, effective July 1. The position of deputy director was established in the recent session of the State Legislature.

Dr. Kriete joined the department in 1947 as chief of the Bureau of Maternal and Child Health.

* * *

Dr. Robert Dyar, chief of the Division of Preventive Medical Services of the California Department of Public Health, was elected president-elect of the Western Branch of the American Public Health Association at the annual meeting of the organization in Long Beach. He will succeed to the presidency next summer upon completion of the term of Dr. G. R. F. Elliott, Provincial Department of Health and Welfare, Vancouver, B. C.

LOS ANGELES

The annual meeting of the **American Society of Anesthesiologists** will be held in Los Angeles, October 13 to 18. The headquarters for this meeting will be the Statler Hotel. An attendance of 1,500 to 2,000 persons is expected.

SAN FRANCISCO

With a program designed to give the medical profession a perspective on the **work being done in the field of electronics,** the West Electronic Show and Convention (WESCON) will present the following symposium between 2 and 4 o'clock in the afternoon of Thursday, August 22, at Civic Auditorium, San Francisco:

1. Dr. Craig Newnan, Varian Associates, Palo Alto—Survey of Electron Accelerators and Radioactive Sources for High Energy Radiation Therapy.
2. Dr. Mitchell Weissbluth, Stanford Medical School—Medical Applications of the Electron Linear Accelerator.
3. Dr. Cornelius A. Tobias, Donner Laboratory, University of California, Berkeley—Biological and Medical Applications of High Energy Protons.
4. Dr. Gail Adams, University of California Hospital, San Francisco—Problems in Dosimetry of X-Radiation.

Dr. Robert R. Newell, Stanford University Medical School, will be chairman of the symposium.

* * *

A testimonial dinner honoring **Dr. Robert R. Newell** on his retirement as professor of radiology at Stanford University Medical School and his new appointment as Civilian Consultant to the Naval Radiological Defense Laboratory, Hunter's Point, will be given September 30 at the Fairmont Hotel.

Reservations may be arranged by communicating with Dr. J. Ward Smith, office of the Dean, 2398 Sacramento Street, San Francisco 15, before September 15.

SANTA CLARA

The eighth annual **meeting of biological societies,** under the auspices of American Institute of Biological Sciences, will be held at Stanford University, Palo Alto, August 25 to 29, 1957. The Western Division of the American Association for the Advancement of Science will co-sponsor the convention with AIBS. Thirty-five societies will meet at this time. An attendance of 3,000 is expected. Approximately 2,000 papers and symposia will be presented during the four days of meetings.

GENERAL

Dr. Dwight H. Murray of Napa, California, immediate past president of the American Medical Association, will be the keynote speaker at the Fourth Annual Pacific Northwest Industrial Health Conference to be held in Portland, September 9 and 10, 1957.

The Conference, endorsed by the Oregon State and Multnomah County medical societies, will feature panel discussions and question periods on such timely industrial-medical subjects as "Employment of the Injured and the Handicapped," "The Older Worker in Industry" and "Industrial Health Problems in the Transportation Industry."

The two-day conference which is to be held at Portland's Multnomah Hotel, is open to all interested physicians. Advance registrations at $10 each are being accepted at the Portland Chamber of Commerce, 824 S. W. Fifth Avenue, Portland 4, Oregon.

* * *

Two California institutions were among seven in the nation to receive **grants from the American Fund for Psychiatry** recently.

An award to the psychiatry department at the University of California will be used to study how life in a strange new culture might contribute to psychological disorders. Under a $3,000 grant, Dr. Shogo Terashima of Japan will evaluate what effect the American culture may have had on Japanese immigrants now suffering from various psychoses.

Receiving a Fellowship for the second straight year is Dr. Jacob P. Kahn of Stanford. Under a $6,000 grant, he will continue his work in the psychiatry department's training program in child psychiatry. Dr. Kahn has been in charge of the supervision of resident psysicians in child psychiatry.

* * *

Dr. Marshall Skaggs of Sacramento was installed as president of the **California Society of Anesthesiologists** at the annual meeting of the organization held in Sun Valley, Idaho, and Dr. John Howard of San Diego was elected president-elect. Dr. Ronald Simpson of San Francisco was elected vice-president, and Dr. Francis Guinney of Los Angeles, secretary-treasurer.

Dr. Bruce Henderson of Oakland was reelected chairman of the board of governors of the Western Conference of Anesthesiologists, which also was meeting in Sun Valley.

* * *

The 1957 *Medical Economics* **award for the best articles** submitted by physicians have just been announced by the national business magazine for physicians. Top award of $500 will go to the physician submitting the best original article during the year. Awards ranging from $300 to $100 will be made for other original articles written by physicians and accepted for publication. This year, for the first time, awards of up to $50 will be made for article ideas submitted by physicians and found suitable for development by *Medical Economics*' staff.

Details may be obtained from: Awards Editor, *Medical Economics*, Oradell, N. J.

POSTGRADUATE
EDUCATION NOTICES

THIS BULLETIN of the dates of postgraduate education programs and the meetings of various medical organizations in California is supplied by the Committee on Postgraduate Activities of the California Medical Association. In order that they may be listed here, please send communications relating to your future medical or surgical programs to: Mrs. Margaret H. Griffith, Director, Postgraduate Activities, California Medical Association, 417 South Hill Street, Los Angeles 13.

UNIVERSITY OF CALIFORNIA AT LOS ANGELES

Treatment of Emotional Problems in Office Practice. Thursdays, September 19 through December 12. Twenty-four hours. Fee: $50.00.

Surgical Anatomy. Mondays, September 23 through November 25.*

Selected Topics in Pathological Physiology of the Cardiovascular System. Limited to 20 students. Mondays, October 7 through December 9. Twenty hours. Fee: $60.00.

Removal of Foreign Bodies in Lung and Bronchi. Limited to 12 students. Wednesday and Thursday, October 9 and 10. Nine hours. Fee: $100.00.

Endocrinology and Metabolism. Friday and Saturday, October 11 and 12. Ten hours.†

Cardiac Roentgenology. Wednesday through Saturday, October 16 through 19.*

Dermatology. Friday through Sunday morning, October 25 to 27. Sixteen hours.†

Aviation Medicine. Thursday, Friday and Saturday, October 31, November 1 and 2. Twenty hours.†

Photomicrography. Mondays, November 4 through December 9. Twelve hours. Fee: $30.00.

Otolaryngology. Friday and Saturday, November 8 and 9. Twelve hours.†

Arthritis and Rheumatism. Friday and Saturday, December 6 and 7. Twelve hours.†

Contact: Thomas H. Sternberg, M.D., Assistant Dean for Postgraduate Medical Education, U.C.L.A., Los Angeles 24. BRadshaw 2-8911, Ext. 202.

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

Fundamental Principles of Radioactivity and the Diagnostic and Therapeutic Uses of Radioisotopes. Two or three month course limited to one enrollee per month. Tuition: $250.00 per month.

Fall Symposia in Obstetrics and Gynecology. Wednesday through Saturday, September 11 to 14. Twenty-eight hours. Fee: $75.00.

Internal Medicine. Monday through Saturday, September 16 to 21. Forty-two hours. Fee: $100.00.

Medicine for General Practitioners. East Oakland Hospital, Tuesday evenings, September 17 to December 10. Twenty-four hours. Fee: $50.00.

Endocrinology. Evening Series in Sacramento, Wednesday evenings, September 25, October 23 and November 20. Fee: $15.00.

Glaucoma. Thursday and Friday, September 26 and 27. Fourteen hours. Fee: $60.00.

Current Advances in Internal Medicine. Wednesday evenings, October 2 through November 6. Fee: $30.00.

Laboratory Technicians Course. Tuesday evenings, October 15 through November 19.*

Annual Ophthalmological Conference. Wednesday-Friday, December 4 to 6. Twenty-one hours.†

Orthopedics. Mount Zion Hospital, Friday and Saturday, December 6 and 7. Fourteen hours.†

Dermatology. Friday and Saturday, January 17 and 18, 1958.*

Cancer Cytology. Monday through Friday January 27 to 31, 1958. Thirty-five hours.†

Course for Physicians in General Practice. Monday through Friday, March 3 to 7, 1958, Mount Zion Hospital.*

Contact: Seymour M. Farber, M.D., Head, Postgraduate Instruction, Office of Medical Extension, University of California Medical Center, San Francisco 22. MOntrose 4-3600, Ext. 665.

STANFORD UNIVERSITY SCHOOL OF MEDICINE

Morning Clinical Conferences, each Monday, Room 515. *Contact:* D. H. Pischel, M.D., Professor, Division of Ophthalmology, Stanford University School of Medicine, 2398 Sacramento St., San Francisco 15.

Postgraduate Conference in Office Dermatology. September 19 to 21. *Contact:* Office of the Dean, Stanford University Medical School, 2398 Sacramento St., San Francisco 15.

UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES

Cardiac Resuscitation. Sponsored by the Los Angeles County Heart Association each Wednesday throughout the year, 4 to 6 p.m. Residents admitted without fee. Tuition for all other physicians: $30.00. (Each session all-inclusive.)

Basic Home Course in Electrocardiography. Physicians may register at any time and receive all 52 issues. Fifty-two weeks. Fee: $100.00.

Advance Home Course in Electrocardiography. One year postgraduate series, electrocardiogram interpretation by mail. Fifty-two issues: $85.00. Physicians may register at any time.

Dermatology. Twelve months full time basic science course beginning September 16. Enrollment limited to 12 qualified physicians. Los Angeles County Hospital. Fee: $1,000.00.

Intensive Review of Internal Medicine. Monday through Friday, 8:30 a.m. to 12:30 p.m., September 23 through October 4. Program scheduled near time Part I of the American Board of Internal Medicine examination in order to accommodate those physicians who desire an intensive review prior to this examination. USC Research Building, 2025 Zonal Ave., Los Angeles. Fee: $65.00.

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*Hours and Fees to be announced.

†Fee to be announced.

Symposium on Sexual Problems. September 27, 9 a.m. to 5 p.m., Statler Hotel, Los Angeles. Fee: $25.00.

Practical Electrocardiography. October 3, 4, 5 and 6, Catalina Island. Fee: $75.00.

Pediatric Clinics for the General Practitioner. October 8, 1957, through March 18, 1958, 8:30 to 9:30 a.m. Childrens Hospital. Fee. $40.00.

Bedside Clinics and Set Clinics in Internal Medicine. Thursdays, October 10, 1957, through January 16, 1958, 7:30 to 9:30 p.m. Los Angeles County Hospital. Fee: $65.00.

Contact: Phil R. Manning, M.D., Director, Postgraduate Division, University of Southern California School of Medicine, 2025 Zonal Avenue, Los Angeles 33. CApital 5-1511.

COLLEGE OF MEDICAL EVANGELISTS

Vue-Vox Postgraduate Refresher Courses. Courses are made up of four or more half-hour lectures each, recorded on hi-fi magnetic tape and illustrated by 35-mm. filmstrips or slides in full color, and adapted for use on any standard tape recorder and filmstrip or slide projector, automatic or manual.

Contact: Paul D. Foster, M.D., chairman, Committee on Audio-Visual Courses, College of Medical Evangelists School of Medicine, 316 North Bailey St., Los Angeles 33.

CALIFORNIA MEDICAL ASSOCIATION POSTGRADUATE COURSES

POSTGRADUATE CIRCUIT COURSES

Sacramento Valley Circuit for Dunsmuir, Chico, Marysville and Auburn, in cooperation with University of California, San Francisco, begins week of October 7, 1957.

North Coast Circuit for Eureka, Ukiah and Napa, in cooperation with Stanford University School of Medicine begins week of October 7, 1957.

POSTGRADUATE INSTITUTES—1958

San Bernardino, Riverside and Orange Counties, in cooperation with College of Medical Evangelists, Arrowhead Springs Hotel, San Bernardino County, February 13 and 14, 1958. Chairman: Elmer O. Carlson, M.D., 756 N. Euclid Ave., Ontario.

West Coast Counties, in cooperation with UCLA School of Medicine, Golden Bough Theater and La Playa Hotel, Carmel, March 6 and 7, 1958. Chairman: Howard C. Miles, M.D., 535 E. Romie Lane, Salinas.

San Joaquin Valley Counties, in cooperation with Stanford University School of Medicine, Hotel Californian, Fresno, March 20 and 21, 1958. Chairman: Henry L. Tiesche, M.D., 1759 Fulton St., Fresno.

North Coast Counties, in cooperation with USC School of Medicine, Hoberg's Resort, Lake County, April 10, 11 and 12, 1958. Chairman: Alfred A. Thurlow, Jr., M.D., 185 Sotoyome Ave., Santa Rosa.

Contact: One of the chairmen listed above, or Mrs. Margaret H. Griffith, Director, Postgraduate Activities, California Medical Association, 417 So. Hill Street, Los Angeles 13. Madison 6-0683.

Audio Digest Foundation, a nonprofit subsidiary of the C.M.A., now offers (on a subscription basis) a series of hour-long tape recordings designed to keep the physician abreast of current happenings in his particular field. Composed of practice-useful abstracts from 600 leading journals, with short lectures and editorial comments from prominent physicians, Audio Digest offers programs covering general practice, surgery, internal medicine, obstetrics and gynecology, and pediatrics.

Contact: Claron L. Oakley, editor, 1919 Wilshire Blvd., Los Angeles 57.

Medical Dates Bulletin

AUGUST MEETINGS

State Board of Medical Examiners Oral Examination, Los Angeles, August 17.*

State Board of Medical Examiners Oral and Clinical Examination for Foreign Graduates, Los Angeles, August 18.‡

State Board of Medical Examiners Written Examination, Los Angeles, August 19 to 22.

Reno Surgical Society Annual Meeting, August 21 to 24, Riverside Hotel, Reno, Nevada. *Contact:* Nelson B. Neff, P.O. Box 188, Reno.

SEPTEMBER MEETINGS

Utah State Medical Association Annual Scientific Session, September 5 to 7, Hotel Utah, Salt Lake City, Utah. *Contact:* Harold Bowman, 42 South Fifth Street, Salt Lake City.

American Congress of Physical Medicine and Rehabilitation, Los Angeles, September 8 to 13. *Contact:* Frances Baker, M.D., secretary, One Tilton St., San Mateo.

Saint John's Hospital Annual Postgraduate Assembly, September 12 to 14, Saint John's Hospital, Santa Monica. *Contact:* John C. Eagan, M.D., director, Postgraduate Assembly, 22nd Street at Santa Monica Blvd., Santa Monica.

Washington State Medical Association Annual Meeting, Olympic Hotel, Seattle, Washington, September 15 to 18. *Contact:* Mr. Ralph W. Neill, executive secretary, 1309 Seventh Ave., Seattle, Washington.

San Diego County General Hospital 11th Annual Postgraduate Assembly, September 18 to 19. Reception for all registrants, 5:00 to 7:00 p.m., September 18. *Contact:* Haddon A. Peck, Jr., M.D., 525 Hawthorne St., San Diego.

Nevada State Medical Association Annual Meeting, Las Vegas, September 25 to 28. *Contact:* Nelson B. Neff, executive secretary, P. O. Box 188, Reno.

American Fracture Association Eighteenth Annual Meeting, El Paso, Texas, September 30 to October 3. *Contact:* H. W. Wellmerling, M.D., 606 Grieshum Bldg., Bloomington, Illinois.

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‡Contact: Louis E. Jones, M.D., 1020 N Street, Sacramento 14.

*NOTE: In regard to the dates of oral examinations, applicants are requested *NOT* to arrange to come to an oral examination until they receive a notice of the action of the Credentials Committee advising them of the time and place to appear.

OCTOBER MEETINGS

San Francisco Heart Association 28th Annual Postgraduate Symposium on Heart Disease, October 2 to 4, St. Francis Hotel, San Francisco. *Contact:* Lawrence I. Kramer, Jr., executive director, 604 Mission St., San Francisco.

American Cancer Society, California Division Annual Cancer Conference, October 3, 2 to 5 and 8 to 10 p.m., Fairmont Hotel, San Francisco. *Contact:* Gerson Biskind, M.D., chairman, Program Committee, 450 Sutter St., San Francisco 8.

Western Industrial Medical Association Sixteenth Annual Meeting combined with First Western Industrial Health Conference, Biltmore Hotel, Los Angeles. October 4 to 6. *Contact:* E. J. Zaik, M.D., secretary, Western Industrial Medical Association, 740 South Olive Street, Los Angeles 14.

San Diego County Heart Association Seventh Annual Professional Symposium on Heart Disease. U. S. Naval Hospital, San Diego, October 8. *Contact:* O. Martin Avison, executive director, San Diego County Heart Association, 1651 Fourth Ave., San Diego.

Los Angeles County Heart Association 27th Annual Symposium on Heart Disease, Wilshire-Ebell Theatre, 4401 W. Eighth St., Los Angeles, October 9 and 10. *Contact:* Walter S. Thompson, Jr., M.D., chairman, 660 S. Western Ave., Los Angeles.

American Cancer Society, Washington Division Annual Meeting, October 11, Olympic Hotel, Seattle. Board of Directors Meeting, October 12. *Contact:* Mrs. Esther Ristine, Office Manager, 123 W. Harrison, Seattle 99, Washington.

Western Orthopedic Association Annual Meeting, October 20 to 24, Santa Barbara. *Contact:* Walter Scott, M.D., secretary, 1321 N. Vermont Ave., Los Angeles 27.

State Board of Medical Examiners Written Examination, October 21 to 24, Sacramento.‡

California Society of Internal Medicine Annual Meeting, October 25 to 27, El Mirador, Palm Springs. *Contact:* Mrs. Mildred B. Coleman, assistant secretary, 350 Post St., San Francisco 8.

California Society Internal Medicine Scientific Session, **The Thyroid.** El Mirador, Palm Springs, 2 to 5 p.m., October 26. *Contact:* William L. Cover, M.D., 575 Fifth St., San Bernardino.

NOVEMBER MEETINGS

California Academy of General Practice Ninth Annual Scientific Assembly, November 3 to 6, Hotel Statler, Los Angeles. *Contact:* William W. Rogers, executive secretary, 461 Market Street, San Francisco.

Pan-Pacific Surgical Association Seventh Congress, November 14 to 22, Honolulu, Hawaii. *Contact:* F. J. Pinkerton, M.D., Director General of Pan-Pacific Surgical Association, Room 230, Young Bldg., Honolulu, Hawaii.

DECEMBER MEETINGS

American College of Chest Physicians Postgraduate Course on Diseases of the Chest, Ambassador Hotel, Los Angeles, December 9 to 13. *Contact:* Alfred Goldman, M.D., chairman, 416 N. Bedford Drive., Beverly Hills.

1958 MEETINGS

California Society of Plastic Surgeons Annual Meeting, March 20 to 22, Del Monte Lodge, Del Monte, California. *Contact:* Benjamin F. Edwards, M.D., 2200 Santa Monica Blvd., Santa Monica.

American College of Obstetricians and Gynecologists, April 21 to 23, Los Angeles. *Contact:* John C. Ullery, M.D., secretary, 15 South Clark St., Chicago 3.

California Medical Association Annual Meeting, Ambassador Hotel, Los Angeles, April 27 to 30. *Contact:* John Hunton, executive secretary, 450 Sutter St., San Francisco 8, or Ed Clancy, director, Public Relations, 417 South Hill St., Los Angeles 13.

American Broncho-Esophagological Association, May 21 to 23, San Francisco. *Contact:* F. Johnson Putney, M.D., secretary, 1719 Rittenhouse Square, Philadelphia, Pa.

California Heart Association Annual Meeting, Scientific Session and Directors Meeting, Hacienda Motel, Fresno, May 23 to 25. *Contact:* J. Keith Thwaites, executive director, 1428 Bush St., San Francisco.

American College of Chest Physicians 24th Annual Meeting, June 18 to 22, San Francisco. *Contact:* Mr. Murray Kornfeld, executive director, 112 East Chestnut St., Chicago 11, Ill.

American Medical Association Annual Meeting, June 23 to 27, San Francisco. *Contact:* American Medical Association, 535 North Dearborn St., Chicago 10.

American Proctologic Society, June 29 to July 3, Los Angeles. *Contact:* Norman D. Nigro, M.D., secretary, 10 Peterboro St., Detroit 1, Michigan.

INFORMATION

Far East Type Influenza In California

Some 30 days after researchers at Walter Reed Army Institute of Research had isolated and identified the virus causing the influenza epidemic in the Far East, the Virus Laboratory of the California State Department of Public Health reported positive identification of isolates, from throat washing from California patients, as Far East strain influenza.

Across the state there appears to be an increase in the incidence of acute respiratory illnesses currently above the number usually expected in June and July.

However, because the disease has been mild in nature, running a two to three day course, the Department at this time:

1. Does not recommend vaccination against influenza in the present situation with the vaccine currently available.
2. Does not recommend any change in normal vacation and camping plans.

During the past weeks, public health officials carefully followed the progress of influenza outbreaks in the Orient. The disease was first seen in Hong Kong and Singapore. Then in rapid succession, almost simultaneous epidemics occurred in Taiwan, the Philippines, the Malayan States, Indonesia, Japan, and India.

These outbreaks have been characterized by unusually high attack rates, up to 18 per cent of the population. The disease is generally of a mild form with sudden onset and fever of 101 to 102 degrees, malaise, muscle aches most pronounced on the back and legs; and a duration of from three to four days.

The virus itself has been described as "Type A virus quite different from Type A strains previously isolated and studied."

The California State Department of Public Health maintains influenza listening posts throughout the state. Recently five outbreaks of acute febrile respiratory disease have been reported and are currently under investigation.

U. C. CAMPUS, DAVIS

An outbreak occurred at Davis in a group of 391 teenage girls attending a conference on the campus. Two hundred and twenty-five of these girls developed a respiratory illness during the ten day period, June 21 to June 30.

It was from this outbreak that the first positive identification of influenza virus, Far East strain, in a resident civilian population group was made by the Virus Laboratory.

One fatality, possibly associated with influenza, has occurred in a middleaged woman who was a participant at the conference. In a preliminary report, pathologic findings were stated to be consistent with an acute toxic myocarditis of the type associated with viral infections. Microscopic examination of tissue sections has not been completed.

SAN FRANCISCO

Thirty-six boys out of a total of fifty-three in a San Francisco Youth Guidance Center facility in San Mateo County, became ill June 20 through June 25. They experienced typical symptoms of influenza. Examination of laboratory specimens has not been completed.

SAN DIEGO

Two outbreaks have been reported involving naval personnel. One occurred among crew members of a naval vessel, June 11. Seventy-eight of the 130 crew members developed influenza-like illness within a three to four day period.

The second outbreak occurred among a group of 4,200 naval recruits. The outbreak began June 18 and during the next eight days about 920 men were admitted to the sick list.

Identification of the virus as Far East like virus has been made in the latter outbreak. Identification in the former outbreak has not yet been established.

FORT ORD, MONTEREY COUNTY

An increased occurrence of acute febrile respiratory disease, clinically resembling influenza was noted among military personnel beginning June 17. At least 245 cases occurred during the period June 17 through July 3. On July 8 there was an apparent recurrence of this outbreak with approximately 130 men being admitted to the sick list with acute febrile respiratory illness over the July 6-7 weekend.

MARE ISLAND, SOLANO COUNTY

During the period from about May 29 to June 7 approximately 38 out of a group of 75 Marines developed an acute febrile respiratory illness. No further cases were seen until about June 16 when approximately 137 cases were hospitalized in one week. Laboratory specimens are being examined at the 6th Army Medical Laboratory.

Other scattered reports of episodes of acute respiratory illness have been reported to the California

State Department of Public Health as follows: San Mateo County, 26 cases among 190 boy campers between June 19 and June 24 and 12 cases among 28 boy campers between June 22 and June 24; Tuolumne County, 55 cases among 135 boy campers and 20 staff members during the week beginning June 26; Santa Cruz County, 30 cases in a group of 130 campers reported June 18.

On July 5, the California State Department of Public Health requested that all local health officers make a telephone check of summer camps and report their findings to the Department. Of reports received by July 11, 1957, four counties, Sonoma, Fresno, Plumas, and Los Angeles have reported cases of influenza-like illness in a few of the camps checked.

Under the Department's Influenza Surveillance Program a total of 37 cases of influenza have been confirmed by laboratory examination of paired blood specimens since November 9, 1956. Twenty-one were identified as influenza caused by the Type A virus and 16 were Type B.

Local health departments and practicing physicians throughout the state are observing closely the occurrence of acute febrile respiratory illness for the purpose of reporting any significant increases or outbreaks to the State Department of Public Health.

Status of Poliomyelitis Inoculations In California

It is now estimated by the State Department of Public Health that about 5.2 million Californians have had their first inoculations of Salk vaccine, 4 million have had second inoculations, and 1.2 million have had all three inoculations. At the time the statewide poliomyelitis immunization program was announced in the fall of 1956 it was estimated that there were 8.6 million persons in California under 40 years of age for whom inoculations were recommended. To provide three inoculations for this entire group would take 25.4 million inoculations. It is estimated that at least 10.4 million inoculations have been given. It is thus seen that in terms of the total program, less than half the goal has been achieved. However, from information available to the Department it appears that approximately 88 per cent of the 0 to 19 age group have had the first inoculation, 70 per cent the second and 25 per cent the third. Of the 20 to 39 age group, 28 per cent it is estimated have had first inoculations, 18 per cent the second and 1.5 per cent the third. Of the total group 0 to 39 it is estimated that 60 per cent have had first inoculations, 46 per cent the second and 14 per cent the third.

The incidence of poliomyelitis is running well below last season. The total of cases reported up to July 6 was approximately half that of last year in the like period, while the number of paralytic cases has been approximately one-fifth of last year's level. It is too early in the poliomyelitis season to know what the total impact of the vaccination program might be. The national figures are running approximately the same as those of California, the incidence being well below last year as well as below the five-year median.

All state-purchased and federal-purchased vaccine had been committed by the end of June and the majority of the local health jurisdictions had completed their public programs with the use of this vaccine. There are, however, a few notable exceptions in large metropolitan areas where the public vaccination program will continue into the summer months due to shortage of vaccine supply.

Occupational Health Programs

The following statement on the scope, objectives, and functions of occupational health programs was submitted to the Board of Trustees of the American Medical Association by the Council on Industrial Health. The statement describes and defines orthodox in-plant medical programs as understood in this country today and distinguishes clearly between such programs and the various plans for comprehensive medical care of the sick.

The statement was approved by the Board of Trustees and was transmitted to the House of Delegates at the meeting held June 3 to 7, 1957. It is printed here as amended and passed by the House of Delegates.

Introduction

As used in this statement, the term "occupational health program" means a program provided by management to deal constructively with the health requirements of employees and employers in relationship to employment.

The term "occupational medicine" means that branch of medicine practiced by physicians in meeting medical problems and needs under occupational health programs.

Occupational health programs in the United States stem from the medical services established by some employers in the middle of the 19th century to meet the needs of their employees in locations where medical services were not satisfactory or readily available. Further impetus to their development was given by the enactment of laws in various states which obligated many employers to maintain safe and healthful work environments and to compensate employees for occupational disability or death.

Occupational Health Programs

Although health maintenance is primarily the responsibility of the individual, an occupational health program represents management's recognition of its obligation to provide a safe work environment and its opportunity to promote better health among its employees. While circumstances may affect the extent of certain services which may enter into a comprehensive health program, a high quality of performance must be preserved at all times.

Cooperation between physicians, nurses, industrial hygienists, technicians and other personnel of the occupational health program and management personnel responsible for the employment, safety and well-being of employees is essential. Occupational health personnel should cooperate also with private and official community agencies providing health, safety, employment and welfare services.

Through the years many forms of occupational health programs have been developed from which has emerged an acceptable basic pattern. Experience indicates that success can be assured when:

1. The program: (a) Observes the basic principle of service to the individual by a physician and conforms to medical customs in the community; (b) complies with existing laws; (c) emphasizes prevention and health maintenance; (d) utilizes community medical resources when adequate or when they can be developed reasonably.

2. The physicians participating in the program: (a) Maintain high standards of professional service and conduct for the benefit of employee and employer alike; (b) cooperate and maintain proper liaison with other physicians in the community and with the local medical society; (c) are engaged and compensated in accordance with the Principles of Medical Ethics of the American Medical Association; (d) do not use their occupational health affiliations as a means of gaining or enlarging a private practice among employees.

In recent years, with the recognition by employers and employees of the values attainable through occupational health programs which apply the advances in preventive medical and engineering knowledge, the earlier concept of curative occupational medicine has been broadened to include and emphasize prevention and health maintenance.

Although current programs reflect varying degrees of development, they all provide a common opportunity for employers, employees and physicians to carry on adult health programs which supplement other health services available in the community and which serve as effective components in community health.

From time to time, problems arise out of a misunderstanding of the proper scope of occupational health programs as contrasted with medical programs for personal (nonoccupational) illness of employees. It is, therefore, essential that employers, employees, and physicians recognize the fundamental distinction between these two types of programs.

In general, these two kinds of programs differ in objectives, methods of financing, amount and type of services provided, and in some cases, in the composition of the group covered. Although the same medical personnel may serve or administer both types of programs, certain activities of occupational health programs are not appropriate to, and cannot generally be performed successfully within the framework of, personal medical service programs. The occupational health programs must be oriented to the work environment and to the health of the employee in relation to his job. On the other hand, when service rendered by physicians under occupational health programs exceeds the limits described hereafter, the occupational health program becomes to that extent a medical program for personal illness and should be so recognized by all concerned.

Medical Programs for Personal (Nonoccupational) Illness

These programs owe their existence to certain factors and circumstances in the employer-employee relationship not directly related to occupational health considerations. A major objective of such programs is to distribute the cost of medical service so as to lighten the economic burden on the employee. Some programs include dependents and/or retired employees as well as the employed group. They are usually designed to provide medical, surgical, and hospital care. The cost of such programs may be financed jointly or solely by management, unions, or the subscribers. Medical services may be provided by personal physicians, or by physicians in management or union health centers, or by other physicians upon referral. Such personal medical services may be diagnostic, therapeutic or rehabilitative, and may be limited or comprehensive in scope. These programs are separate and distinct from occupational health programs, the objectives, activities, facilities and personnel of which are described in the remainder of this statement.

Objectives of Occupational Health Programs

The objectives of an occupational health program are:

1. To protect individuals against health hazards in their work environment.

2. To insure and facilitate the placement and suitability of individuals according to their physical capacities and their emotional make-up in work which they can reasonably perform with an acceptable degree of efficiency and without endangering

their own health and safety or that of their fellow employees, and

3. To encourage personal health maintenance.

The achievement of these objectives benefits both employers and employees in terms of improved employee health, morale, and productivity.

Activities to Attain Objectives

In order to attain these objectives the following activities (and the maintenance of appropriate records) are essential:

1. *Supervision of the work environment from a health standpoint.* This requires periodic inspections by physicians of the entire premises used by employees, including provision for, and appropriate participation in, the procedures and tests required to detect and appraise health hazards. Such inspections and appraisals provide current information on health aspects of work conditions, processes and substances used. This information, including those relating to stress and mental health, will aid in evaluating any health hazards that may exist and in making appropriate recommendations for preventive or corrective measures.

2. *Health examinations.* Unrealistic and needlessly stringent standards of physical fitness defeat the purposes of health examinations and of maximum utilization of the available work force.

Health examinations should consist of:

(a) An initial examination to determine the health status of the individual in order to facilitate suitable placement in employment. This examination should include (1) his family and personal medical history; (2) his occupational history; (3) a physical examination, and (4) other procedures to help determine the individual's employability and his capacity for work.

(b) Subsequent examinations carried out at suitable intervals and designed to detect any sign or symptom of ill health related to employment conditions; and to evaluate the health status of the individual and to make sure that his health is compatible with his job assignment.

All examinations must be conducted by physicians with such assistance from ancillary personnel as may be required. Prior to each examination, the individual should be advised as to its constructive purpose and value. At the conclusion of an examination, the physician should discuss his findings meaningfully with the individual. When health defects are found, the physician should explain to the individual the importance of obtaining further medical attention and encourage him to consult his personal physician.

3. *Medical records.* The maintenance of accurate and complete medical records of every individual from the time of his first examination or treatment is a basic requirement. Except when otherwise required by law, the confidential character of these records, including the results of health examinations, must be rigidly observed by all members of the occupational health staff, and such records must remain in the exclusive custody and control of the medical personnel. The patient should be informed of all pertinent health findings except when such disclosures would have an adverse effect on his health and well-being. A private physician or other agency may be provided with a report of health findings when the patient so designates. Disclosure of health information should not be made without the approval of the patient except when essential to fulfill the legal obligations to the third party or to the public, and then, only to the extent necessary to fulfill such obligations.

4. *Medical diagnosis and treatment.* Every employee should be encouraged to have a personal physician.

(a) Diagnosis and therapy required by workmen's compensation laws for occupational injury or illness should be directed toward optimum rehabilitation of the employee. The right of the employee to select his attending physician should be maintained. The attending physician may be a member of the occupational health staff or any physician in the community willing and qualified to perform the essential services.

(b) Diagnosis and therapy in case of nonoccupational injury or illness is *not* a responsibility of an occupational health program, with the limited exceptions noted below.

Emergency cases should be given the attention required to prevent loss of life or limb or to relieve suffering until the patient is placed under the care of a personal physician.

For minor disorders, first aid or palliative treatment may be given if the condition is one for which the individual would not reasonably be expected to seek the attention of a personal physician, or to enable the individual to complete his current work shift before consulting a personal physician.

In occupational health programs, requests for treatment of repetitive personal disorders should be discouraged, and such individuals should be referred to their personal physicians.

(c) The best interests of a patient are served by cooperation and communication between attending physicians and physicians in charge of occupational health programs. In this way, prompt restoration of employees to suitable employment can be assured.

5. *Health and safety education.* A high standard of occupational health cannot be achieved without familiarity with, and the observance of, fundamental health rules. The development of an understanding of these rules and the promotion of their observance

is an essential task in which an occupational health staff can render very valuable assistance.

An occupational health program should promote the education of employees in matters of personal hygiene and health and encourage the use of safeguards provided to protect against any hazards to health which may be inherent in their jobs. The most favorable opportunities for carrying on health education and counseling will be afforded during visits to health facilities and through periodic inspections of the employee's place of work.

Health and safety education involves the cooperative efforts of health, safety, and operating personnel. Such education should include not only the encouragement of habits of cleanliness and orderliness but also instruction, in collaboration with the employee's immediate supervisor in safe work practices, in the use and maintenance of available personal protective clothing and equipment.

Experience has shown that health education is unlikely to be successful unless the employer demonstrates his sincere and continuing interest in the health of his employees. This entails participation by health personnel in health and safety meetings. Likewise, employees should be encouraged to participate in the planning and conduct of health education activities and to make full and effective use of occupational health services and facilities available to them.

An occupational health program, to be effective and acceptable to the employee, must be staffed by objective and competent personnel who create an atmosphere of warm, sincere, and positive personal helpfulness.

Personnel

All phases of an occupational health program should be under medical supervision. This requires the appointment of a medical director, full or part-time, who is a qualified doctor of medicine. Training and/or experience in occupational medicine is desirable. The medical director should have a responsible role in the development and interpretation of medical policy. He should administer the health program and be directly responsible to a designated official at the policy-making level of management. Additional physicians, as consultants or associates, may be required for an effective program. The duties of these physicians should be clearly defined by the medical director.

Qualified auxiliary personnel, selected and directed by the physician in charge, are essential to the proper functioning of an occupational health program. According to program needs, these may include nurses, industrial hygienists, first aid attendants, and laboratory and clerical personnel.

A nurse should be a graduate of an accredited school of nursing, registered and legally qualified to practice nursing where employed. Training and/or experience in occupational health is desirable. She should assist the physician in the supervision of the health of employees while at work and in their health education. Her professional duties and nursing procedures should be clearly defined in writing by the physician to whom she is responsible.

One or more qualified first aid attendants, known to all employees, should always be available during working hours. They should receive periodic refresher instruction and be provided with specific written instructions by the physician in charge.

Facilities

The facilities of an occupational health program may be available at the place of employment or in the community. When provided on the employment premises, facilities should:

1. Be located in a quiet area, readily accessible to employees;

2. Be sufficiently spacious, well lighted, ventilated and heated;

3. Include waiting, consultation, examining and treatment rooms, and toilet facilities, to insure adequate privacy and comfort; and

4. Have appropriate medical and laboratory equipment.

It may also be desirable to provide a rest or recovery room, dressing rooms and facilities for laboratory and radiological examinations.

Conclusion

Specific and detailed recommendations as to facilities, personnel and other aspects of individual occupational health programs obviously are beyond the scope of this statement. It is recommended that the local medical society be consulted to assure that a given program is in agreement with the objectives of this statement and with established community practices.

THE PHYSICIAN'S *Bookshelf*

THE PATIENT SPEAKS—Harold A. Abramson, M.D., Associate Attending Physician and Chief of the Allergy Clinic, The Mount Sinai Hospital, New York City. Vantage Press, 120 West 31st Street, New York 1, N. Y., 1956. 239 pages, $3.50.

Gives a continuing picture of the progress in psychotherapy of a patient with a chronic eczema and asthma. The treatment was nondirective and had as its goal, giving the patient an understanding of the emotional factors and conflicts which were contributing to her illness. The major portion of the book consists of a verbatim record of parts of many of the hours of treatment and in this respect the book is somewhat unique. Because of its nontechnical language it will be helpful to the public as well as to physicians in understanding the nature of psychotherapy.

It emphasizes the importance of considering psychic as well as somatic factors and their interaction in the treatment of a patient. The author makes no pretense of attempting to explain why the skin (as contrasted with some other organ) was the organ in which the patient's neurosis expressed itself.

The material that has been selected for inclusion in the book relates primarily to the patient's relationship with her mother. Since the author's role in the treatment process is not emphasized, it does not give a complete description of the psychotherapeutic process and therefore will not be helpful as a guide to physicians who wish to treat such patients.

The last chapter of the book is devoted to some theoretical formulations regarding the role of parent-child relationships in the development of allergic disorders. Dr. Abramson does not make the mistake, that so many others have, of attempting to attribute the allergic disorder seen in children to "maternal rejection." He emphasizes the complexity of the relationship between the child and its mother and believes there is a tendency to mutual engulfment which is often resolved when child and parent are separated.

NORMAN Q. BRILL, M.D.

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CHALLENGES TO CONTEMPORARY MEDICINE—Alan Gregg, Vice-President Emeritus of the Rockefeller Foundation. Columbia University Press, New York, 1956. 120 pages, $3.00.

For the sixth of the Bampton Lectures, delivered in 1953 at Columbia University, Doctor Alan Gregg of the Rockefeller Foundation discusses a series of interlocking themes leading to a conception of the medicine of the future and the methods of its achievement. The first essay sets out to show that the general attitude toward modern medicine is one of undue complacency. This complacency has been bred from the relative security in modern times from the massive disasters of epidemic disease, with a failure to recognize the positive achievement. Consequently a general apathy discourages further advance. In succeeding essays the author points to the necessity of inculcating a new and wider interpretation of the meaning of health and disease out of which should emerge a new medicine of a holistic sort in which all medical and paramedical personnel are fully integrated to provide the finest in both preventive and curative aspects of medical care. Doctor Gregg designates this new medicine "Great Medicine" which will require newer conceptions and techniques of medical education and a more extensive scheme of voluntary prepaid health insurance to pay for it, costs which would be more than offset by the increase in earning power and wealth of the nation. He clearly and properly states that "The cost of medical education is part of the cost of medical care" and that "Today's teaching controls tomorrow's practice." Yet these costs have not been included in the costs of medicine and this neglect is likely to stultify future advance. With proper finance, however, the prospects for future protection are simply fantastic.

The argument is one of intense interest even though the author is not always consistent and speaks in highly generalized terms. Many will disagree with the author's views on patient-doctor relationships but aside from such differences there is much food for thought in this provocative book which should have a wide audience among physicians and educators.

J. B. deC. M. SAUNDERS, M.D.

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CLINICAL USE OF RADIOISOTOPES — William H. Beierwaltes, M.D., Associate Professor of Internal Medicine and Coordinator, Clinical Radioisotope Unit, University Hospital, Ann Arbor; Philip C. Johnson, M.D., Assistant Professor of Internal Medicine, University of Oklahoma Medical School, Oklahoma City; and Arthur J. Solari, B.S., M.S. (Physics), Instructor in Radiation Physics, Department of Radiology, University Hospital, Ann Arbor. W. B. Saunders Company, Philadelphia, 1957. 456 pages, 126 figures, $11.50.

This book is one of the best on its subject for it fills a need felt by many people working on radioisotopes in medicine. It would be very helpful for the indoctrination of those persons who wish instruction on the general principles and application of radioisotopes to clinical problems—physicians, medical students, technicians. As is usual with such a text, there is much information stated about I^{131} with short dissertations on the other commonly employed radioisotopes—P^{32}, Fe^{59}, and Cr^{51}.

It could be that the appendix may cover too much special detailed information for the above persons, i.e., decay curves, statistical errors of counting, etc. The reviewer thought that there may be a lack of remarks for radioisotopes on radiation effects on living cells, a deficiency in calculation procedure used in radiation physics, i.e., calculation of doses delivered to tissues. In general, however, such deficiencies should not detract from the great usefulness of this text and it is recommended for those who wish indoctrination and the details of application of radioisotopes.

WILLIAM A. REILLY, M.D.

THE LABYRINTH—Physiology and Functional Tests—Joseph J. Fischer, M.D., Clinical Professor in Otolaryngology, School of Medicine, Tufts University. Grune and Stratton, New York, 1956. 206 pages, $6.00.

This monograph is a modernized version of the first four chapters of "The Inner Ear," written by Dr. Fischer and Dr. Louis E. Wolfson (Grune and Stratton, 1943). As indicated by the title, the book deals only with the semicircular canals, the utricle, and saccule, and their central connections. The basic organization of the subject matter, the greater part of the text, and most of the illustrations are the same as in the original work.

Divided into sections on physiology and functional tests, the book presents the same subject matter, first in the light of didactic physiology and again in connection with functional tests and their clinical significance. From the standpoint of intelligible exposition of a difficult and confusing subject, this dichotomy appears to be ill-advised.

Nonetheless, the book contains a great deal of valuable information and each chapter is followed by a comprehensive bibliography. It should be a most useful text for residents in otology, neurology, and neurosurgery and will serve as a helpful reference for practitioners in these fields.

* * *

LOW-FAT COOKERY—Evelyn S. Stead and Gloria K. Warren, Dietitian, with an Introduction by Eugene A. Stead, Jr., M.D., and James V. Warren, M.D. The Blakiston Division, McGraw-Hill Book Company, Inc., New York, 1956. 184 pages, $3.95.

The authors list five possible indications for limitation of fat in the diet. Namely, (1) healthy people who wish to reduce their intake of fat without reducing weight, (2) healthy obese people, (3) patients with heart disease or hypertensive vascular disease, (4) patients with coronary artery disease or atherosclerosis, (5) patients with diabetes.

In the opinion of this reviewer, the book serves a useful purpose as a source of recipes for people who need calorie restrictions and/or restriction of animal fat. Unfortunately (in view of the developments of the past five years) no distinction is made between fats of different origins, with particular reference to animal, vegetable and fish sources. Perhaps later editions of this book will contain pertinent information of this sort.

The reviewer would agree in part with the statement by Doctors Stead and Warren that "low fat cookery is the answer to weight control in those people who enjoy the pleasures of the table." On the basis of his own experience he would not agree with the philosophy that in truly obese individuals rapid weight loss is not essential. For psychological reasons, unless one prescribes a workable diet which will result in an average weight loss of three pounds a week, in the individual who needs to lose fifty pounds or more, the net result will be discouragement and a departure from the diet.

Many of the recipes and menus included in *Low-Fat Cookery* will be helpful for individuals who, having achieved normal weight on a more rigid diet, wish to hold the gains which have been made.

Laurance W. Kinsell, M.D.

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HOW TO ENJOY GOOD HEALTH—Edited by Cyril Solomon, M.D., and Brooks Roberts, M.D. Random House, 457 Madison Ave., New York 22, N. Y., 1956. 240 pages, $3.95.

This volume, which bears on its jacket the statement that publication is authorized by the American Medical Association, can hardly be called a book. It is constructed on the general plan of a scrapbook by reprinting ephemeral articles of the type printed in newspapers and weekly magazines. These are written by 67 different authors, almost all of whom may properly be considered authorities. In spite of the eminence of the authors, the quality is uneven. There is an over emphasis of "How to" in the numerous titles and yet this promise in the titles is not, nor could it be, redeemed in the few paragraphs making up each article. In short, the volume remains only a reprinting of articles previously published in lay periodicals. It is suggested that the practicing physician look at the volume before he recommends it to his patients.

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ADVANCES IN PEDIATRICS—Volume IX—1957—Edited by S. Z. Levine, M.D., Cornell University Medical College. The Year Book Publishers, Inc., 200 E. Illinois St., Chicago, 1957. 336 pages. $9.00.

This volume of Advances in Pediatrics deals with seven topics of timely interest which most pediatricians and all teaching centers will be interested in. These subjects are: Postmaturity by Stewart Clifford, The Gamma Globulins by Charles Janeway and David Gitlin, Thyroid Disorders in Childhood by William Reilly, Familial Dysautonomia by Conrad Riley, The Use of Fluoride Compounds in Prevention of Dental Caries by Edward Schlesinger and David Ast, Coagulation Disorders in Infancy and Childhood by Irving Schulman and Carl Smith and Celiac Disease by three Dutch authors: Weijers, Van De Kamer and Dicke. The latter article includes gliadin and other types of wheat intolerance.

Each of the topics deals with enough new or recent material to justify the editors' choice of its inclusion in the volume. An exhaustive and up-to-date bibliography accompanies each chapter. This review of selected advances in pediatrics is recommended as a worthy library addition for all pediatricians and for others dealing chiefly with children.

William C. Deamer, M.D.

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GUIDE TO MEDICAL WRITING—A Practical Manual for Physicians, Dentists, Nurses, Pharmacists—Henry A. Davidson, M.D., Editor, Journal of the Medical Society of New Jersey. The Ronald Press Company, 15 East 26th Street, New York 10, N. Y., 1957. 338 pages, $5.00.

As a whilom author I wish that a book like this one had been at my elbow in the days when I was busily preparing a fairly considerable number of scientific and clinical reports. I might have made more of an imprint upon editors and scientific journals or the readers thereof. As a present editor of sorts, I recommend this book with enthusiasm to those would be authors of today and tomorrow, who are desirous of seeing their labors in print!

Dr. Davidson, who is editor of the *Journal of the Medical Society of New Jersey* and author of several books, has compressed a great deal of good advice into a How To Do It book of only 338 pages. His book attempts to show the prospective author how to start and to organize his article; how to select a catchy title and how to hook reader interest. It tells him how to capitalize, spell and abbreviate. It suggests ways of making writing clear. It shows him how to search the literature and how to set up a bibliography, and gives ideas on all the other things he should do in preparing an article properly.

There are also bits of advice for the writers of editorials, of abstracts, and of books, plus odds and ends of valuable information such as proofreader's signs, conversions of metric and apothecary units, a table of eponyms with their proper disease equivalents and a roster of medical publications.

All of this adds up to a book which can save a good deal of time and work for any aspiring author and is a ready-made guide from the point of view of the editor.

Edgar Wayburn, M.D.

POSITIONING IN RADIOGRAPHY—Seventh Edition—K. C. Clark, M.B.E., F.S.R., Past President, Society of Radiographers. Grune & Stratton, Inc., 381 Fourth Ave., New York, 1956. 655 pages, 2,150 illustrations, $29.00.

Correct diagnosis is the cornerstone of modern medicine, and correct interpretation of reliably made roentgenograms is an important factor in such diagnosis. It is therefore a pleasure to welcome this seventh edition of one of the outstanding international texts on roentgen technique.

The work is divided into 36 sections, commencing with a brief introduction and then following with chapters devoted to the different anatomic areas of the body.

There are also sections on foreign bodies, stereoscopy, miniature radiography, cineradiography and macroradiography. There is a new and up-to-date section on angiography.

There are four supplements dealing respectively with contrast media, exposure tables, patient dosage and metric equivalent.

This new edition has been increased by some 100 pages and several hundred new illustrations. Some of the latter (dealing with angiography) are acknowledged to CALIFORNIA MEDICINE in the preface.

The illustration of the colograms with air contrast could be improved, and the usefulness of high voltage diagnostic studies in the elucidation of polyps might be stressed in the next edition. The text and illustrations are of a high order and it is to be hoped that this edition will enhance the safety of diagnostic radiography by aiding physicians to secure the proper exposures the *first* time. Radiation dosage to a patient must be kept to a minimum, consistent with efficient diagnosis.

The author is head of the department of radiography and medical photography of Ilford, Ltd. in England.

* * *

BEYOND LAUGHTER—Martin Grotjahn, M.D. The Blakiston Division, McGraw-Hill Book Company, Inc., New York, 1957. 285 pages, $6.00.

Cachinnation, mirth, behavior Abderian and plain chortling are conditions without which this short terrestrial voyage would be indeed grim. Laughter, like faith, appetite, the appreciation of sunsets, is usually taken for granted. However, anatomists, philologic and psychiatric insist upon dissecting it at times.

The present work is not a popularization of psychoanalysis, nor a textbook of psychopathology. It is a collection of essays dealing with the technique of jokes, the development of the sense of humor in the child, the author's outlook on clowns and burlesque queens, and the relation of humor to sex. Lest the latter point be overlooked, there are large sections devoted to the Viennese diety, the meaning of Ferdinand the Bull and symbolism of Alice in Wonderland. Girl equals phallus.

The above rather solid fare is lightened in spots with suitable quotations such as a piece of nonsense wit from the great man: "Never to be born would be best for mortal man, but this happens only to a very few." The language study of mathematics by a young California gentleman who addressed his father, "Do you see that fly? Please kill it." And several hundred other chestnuts of distinguished vintage.

The author goes into considerable detail on the Oedipus theme as the basis of the Wild West story, and the hazards of making wishes sitting on horses. There is a sixteen page bibliography, three pages of which are devoted to the works of Dr. Sigmund Freud.

This work is probably very important and to be appreciated by the erudite and the serious students of the psyche. However, to the average practicing physicians a more suitable title would undoubtedly be: "Beyond Comprehension."

DICTIONARY OF POISONS—Ibert Mellan and Eleanor Mellan. Philosophical Library, New York, 1956. 150 pages, $4.75.

Although the purpose of this book is not defined, it apparently has been written to give nonmedical readers information concerning the history, dangers, and emergency first-aid treatment for a number of poisons.

Poisons are taken up in alphabetical order without index or cross-references. There are one to three page descriptions of 32 different poisons and one-half page outlines for 108 more. Among the poisons described monographically are common poisons such as aspirin, arsenic, barbiturates, and ethyl alcohol, as well as substances not commonly responsible for poisoning such as antimony, cinchona, and curare. In each monograph, approximately two-thirds of the space is taken up by historical background and folk lore and the remainder describes manifestations of toxicity. Actual symptoms are ordinarily covered by one or two lines. As an example, in the three pages on insects about two and one-half pages are used to describe the diseases carried by insects, while most of the remainder repeats information given in a separate section on the poisonous spiders and their effects.

The outlines for the remaining poisons include sources of poison (one line), cautions for safe use (one line), symptoms (one line), and antidote and first-aid treatment (four to eight lines). The treatment suggestions include only those usable by nonmedical persons. Each outline ends with a statement: "Call a physician!"

Insufficient material is given on pesticides, household poisons, and over-the-counter medicinal agents to make the book a household reference for general use. The alphabetical arrangement makes the book impractical as an instruction manual for new parents. Some readers may find the historical information about poisons of interest.

R. H. DREISBACH, M.D.

* * *

OCCUPATIONAL DISEASES OF THE SKIN—Third Edition—Thoroughly Revised—Louis Schwartz, M.D., Medical Director (Retired) USPHS, Chief Dermatosis Section, Consultant in Dermatology, National Institutes of Health; Louis Tulipan, M.D., Emeritus Clinical Professor of Dermatology, New York University; and Donald J. Birmingham, M.D., Medical Director, Chief Dermatologist, Occupational Health Program, USPHS. Lea & Febiger, Philadelphia, 1957. 981 pages, 189 illustrations, $18.00.

This book describing the occupational hazards to the skin encountered in the industries is undoubtedly the best and most complete work on the subject in the English language, and probably the best in any language. It would be difficult to find any industry or any occupational irritant with which it does not deal.

The processes of manufacture are thoroughly described, the hazards pointed out, the resultant dermatoses are pictured and proper treatment advised. But most important, the authors tell of ways and means of avoiding these hazards such as personal and plant hygiene, safer chemicals to use and closed systems of manufacture.

One chapter, by W. D. Norwood, M.D., concerning skin hazards from radiation in atomic industry, medicine and defense is particularly important at this time.

The authors, all highly experienced men in this field, are to be congratulated upon the production of such a valuable volume. It should be on the bookshelf of everyone interested in industrial medicine, be he a general physician, an industrial physician or a dermatologist.

H. J. TEMPLETON, M.D.

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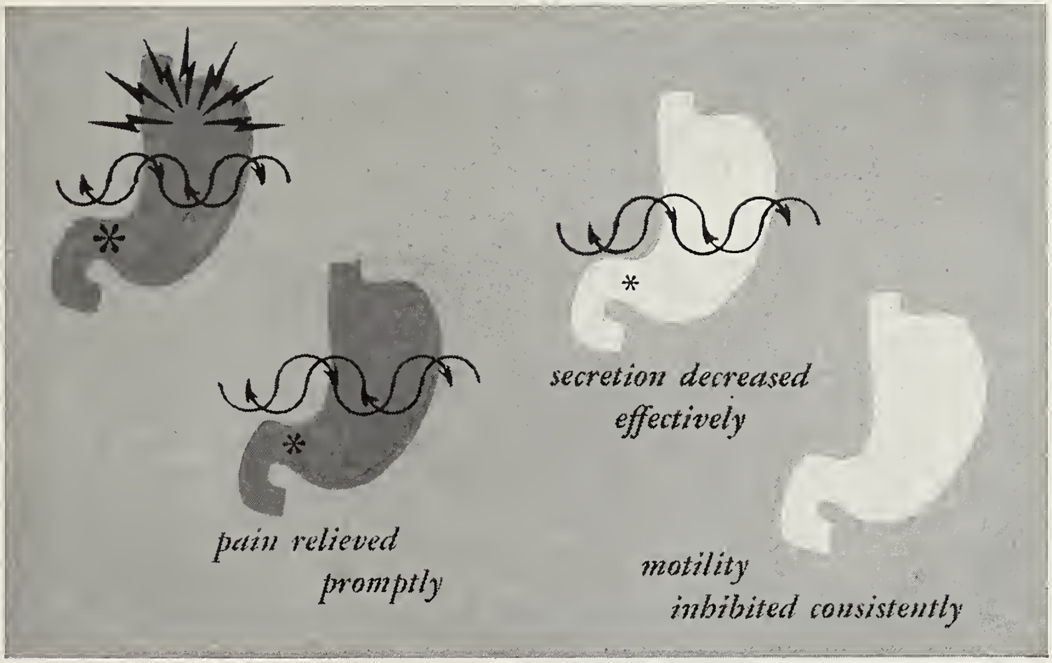

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The therapeutic utility and effectiveness of Pro-Banthīne in the treatment of peptic ulcer are repeatedly confirmed in the medical literature. Dosage: One tablet with each meal and two tablets at bedtime. G. D. Searle & Co., Chicago 80, Illinois, Research in the Service of Medicine.

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*Lichstein, J.; Morehouse, M. G., and Osmon, K. L.: Pro-Banthīne in the Treatment of Peptic Ulcer. A Clinical Evaluation with Gastric Secretory, Motility and Gastroscopic Studies. Report of 60 cases, Am. J. M. Sc. *232:*156 (Aug.) 1956.

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Adopt New Principles for Industrial Medicine

One of the most important actions taken by the A.M.A. House of Delegates in New York, which received little publicity, was the adoption of a new statement on occupational health programs.

This statement was simply entitled: "Scope, Objectives and Functions of Occupational Health Programs."

A great amount of work went into its preparation. It was first approved by the A.M.A. Council on Industrial Health at its annual meeting in Los Angeles last February. Then it was approved by the Board of Trustees. Early this month, it was adopted by the House of Delegates after being given careful consideration by the reference committee on hygiene, public health and industrial health. The reference committee report said in part:

"It is the unanimous opinion of your Reference Committee that the House has before it a statement which for the first time clearly defines the scope, objectives and functions of occupational health programs. It marks the needs and boundaries of occupational medicine. It states in a positive fashion the proper place of occupational health programs in the practice of medicine and it clearly charts the pathways of communication between physicians in occupational health programs and physicians in the private practice of medicine."

Why is this an important document?

"Because," as Council Secretary B. Dixon Holland said, "it will serve as the 'bible' to all physicians engaged in any way in industrial health work." It gives a clear-cut expression to medicine's acknowledgment that the American working man is entitled to the best health protection possible while he is on the job.

Good occupational health programs do not benefit the man on the job alone, but, as Dr. Holland says, they are good for business and the nation's economy.

In the past there has been no authoritative delineation of all that is encompassed in industrial medicine.

"An industrial physician has often been pictured as a glorified first-aid man to a captive clientele," Dr. Holland said, adding: "Labor often pictures him as the 'company doctor,' a hireling of management. And management has sometimes expected him to serve as a sort of cat's paw to protect the company against claims."

The purpose of the new pronouncement is to define, improve and dignify the practice of occupational medicine in all phases, thereby helping all workers.

The program, according to Dr. Holland and members of his council, will help to:

"Encourage adherence of all physicians to proper standards of competence and conduct in industrial medical practice;

"Correct shortcomings which have often placed

(Continued on Page 62)

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for use in common

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*F. K. Garvey and J. M. Lancaster, North Carolina M. J., *18*:78, 1957.

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ORIGINAL RESEARCH IN MEDICINE AND CHEMISTRY

Kwashiorkor Symptoms, Treatment Described

Children suffering from a serious and often fatal disease of malnutrition can be cured with a relatively simple treatment—drinking skim milk, five Central American doctors stated recently.

Kwashiorkor, resulting from severe protein deficiency, is rare in the United States, but is a common disease among preschool children in most underdeveloped parts of the world, the doctors said in a recent issue of the *Journal of the American Medical Association.*

Protein deficiency begins to develop as soon as the quantity of protein contained in the mother's milk becomes inadequate for the needs of the growing child. The inadequacy steadily increases as the child later receives a diet high in carbohydrate and low in protein.

Some children pass through the preschool period with only a mild protein deficiency and resume more normal growth and development when they reach school age. However, many develop kwashiorkor and without proper treatment die of this disease.

Symptoms include retarded growth and development, loss of appetite, apathy, irritability, skin changes, brittle hair and nails, anemia, fluid retention and swelling of the body, and changes in the internal organs.

An acute episode of kwashiorkor may be precipitated in a child already generally malnourished by infectious diarrhea; an infectious disease such as measles or whooping cough; an emotional shock, or the worsening of the family's economic condition. At times the basic diet is so poor that the child gradually develops kwashiorkor without any identifiable cause.

When dried skim milk or half-skim milk is given, most of the symptoms disappear or greatly improve within seven to 10 days.

This "dramatic rapidity" of recovery is a "remarkable thing," the authors said, since malnourished children would not be expected to be able to eat because of their shrunken stomachs.

The authors' experience with Central American children indicates that oral administration of milk or vegetable protein mixtures, by stomach tube if necessary, is the preferred treatment. Injections of protein material, vitamins, or other drugs are not necessary.

They also noted that when these children are hospitalized, they should be isolated to prevent exposure to infectious diseases.

The authors are Drs. Nevin S. Scrimshaw, Moises Behar, Carlos Tejada, and Fernando Viteri, and Guillermo Arroyave, Ph.D., of the Institute of Nutrition of Central America and Panama, Guatemala.

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[1] *Wolf & Wolff, Human Gastric Function*

Literature, samples, and personally imprinted peptic ulcer diet booklets on request.

Adopt New Principles for Industrial Medicine

(Continued from Page 54)

industrial medicine in an unfavorable light with the medical profession, labor and management;

"Force from the ranks of industrial medicine all incompetent and unethical physicians;

"Serve as a yardstick for state and county medical societies in evaluating any service within their areas which purports to be an occupational health program;

"Determine whether the physician is practicing good occupational medicine and is not encroaching into the realm of the private practice of medicine."

"In brief," Dr. Holland said, "the new statement will help the ethical, competent industrial physician clear up any doubts in the minds of his fellow-physicians in private practice as to whether he is practicing good occupational medicine, and thereby gain their good will and cooperation."

—*A.M.A. Secretary's Letter*

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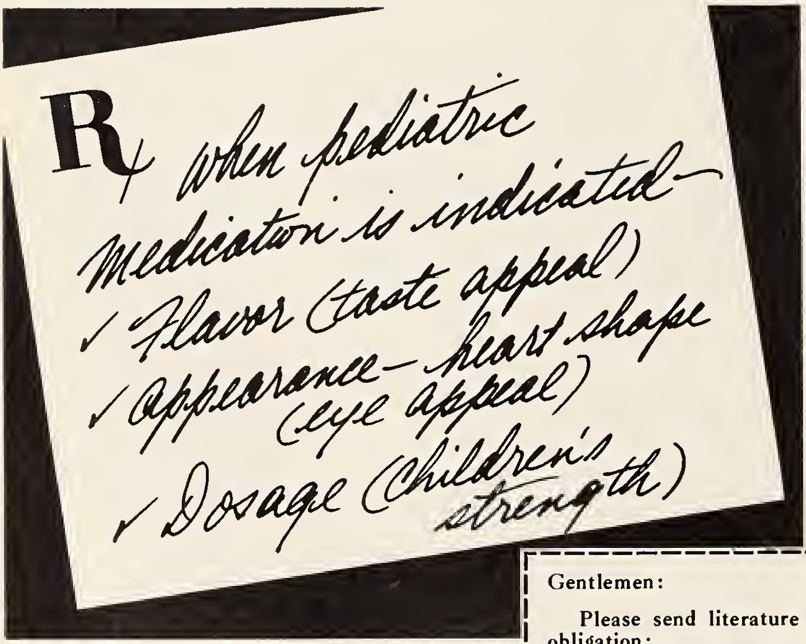

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Meat...

and the Need for Adequate Protein in Therapeutic Nutrition

Liberal protein intake is considered to be of therapeutic value in a wide variety of pathologic conditions.[1] Advances in the understanding of protein metabolism indicate that dietary protein should provide amino acids in proportions paralleling physiologic needs.[2,3] In experimental studies with animals, low protein diets supplying amino acids disproportionate to needs have been shown to effect physiologic harm by depressing growth, by inducing amino acid and B-vitamin deficiencies, and by causing deposition of fat in the liver.[4]

Hence not only the *amount* of protein but also its *quality* (in terms of its amino acid proportions) is important. It has been suggested[1] that for therapeutic purposes about two-thirds of the ingested protein come from foods of animal source, whose protein resembles human body protein in amino acid interrelationships. Depending on the needs of the patient, the therapeutic diet may supply 1.0 or more grams of protein per kilogram of body weight. Adequate caloric intake is required to protect the dietary protein from dissipation for energy purposes.

Meat, with its high content of top-quality protein, holds a prominent place among foods which supply this essential for establishing satisfactory levels of amino acids in physiologic proportions. It also contributes valuable amounts of B vitamins and essential minerals—nutrients which play a basic role in intermediate metabolism.

---

1. Proudfit, P. T., and Robinson, C. H.: Nutrition and Diet Therapy, ed. 11, New York, The Macmillan Company, 1955, pp. 314-320.
2. Harper, A. E.: Amino Acid Imbalance, Toxicities and Antagonisms, Nutrition Rev. *14*:225 (Aug.) 1956.
3. Amino Acid Requirements of Adult Man, Nutrition Rev. *14*:232 (Aug.) 1956.
4. Amino Acid Imbalance and Supplementation, Editorial, J.A.M.A. *161*:884 (June 30) 1956. Council on Foods and Nutrition, American Medical Association: Importance of Amino Acid Balance in Nutrition, J.A.M.A. *158*:655 (June 25) 1955.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

American Meat Institute
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Population's Natural Immunity to Polio Increasing

Natural immunity to polio among the general population has been steadily increasing since 1915, two New York physicians recently stated.

Writing in a recent issue of the *Journal of the American Medical Association*, Drs. Robert L. Vought and Morris Greenberg said they studied polio death and paralysis rates in New York City from 1915 to 1944.

They found that polio death rates among successive generations of children under 15 years have been reduced 75 to 90 per cent from 1915. Since there were no artificial immunization methods available before 1954, they attributed this drop to increasing natural immunization and better medical care and sanitation.

They predicted on the basis of the 1915-1944 figures a further drop of another 75 to 90 per cent by 1969. And artificial immunization methods such as the Salk vaccine may cause a still greater drop in mortality and paralysis, they said. Even if they do not, the outlook for future generations is "quite encouraging" on the basis of natural immunity.

Natural immunization against polio occurs when the virus is spread from the gastrointestinal or res-

(Continued on Page 78)

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BOOKS RECEIVED

BRONCHOPULMONARY DISEASES — Basic Aspects, Diagnosis and Treatment—by 142 authors—Edited by Emil A. Naclerio, M.D., Chief of the Thoracic Surgical Services, Harlem and Columbus Hospitals, New York. 956 pages, 719 illustrations, $24.00.

CHEMISTRY AND BIOLOGY OF PURINES—Ciba Foundation Symposium—G. E. W. Wolstenholme, O.B.E., M.A., M.B., B.Ch. and Cecilia M. O'Connor, B.Sc., Editors for the Ciba Foundation. Little, Brown and Company, Boston, 1957. 327 pages, 124 illustrations, $9.00.

ELECTROCARDIOGRAM, THE—Its Interpretation and Clinical Application—Second Edition, Revised—Louis H. Sigler, M.D., F.A.C.P., F.C.C.P., F.A.C.C., Attending Cardiologist and Chief of Cardia Clinics, Coney Island Hospital, etc., Grune & Stratton, New York, 1957. 312 pages, $8.75.

FAMILY IN PSYCHOTHERAPY, THE—C. F. Midelfort, M.D., Adolph Gundersen Medical Foundation, La Crosse, Wisconsin. The Blakiston Division, McGraw-Hill Book Company, New York, 1957. 203 pages, $6.50.

GOUT—2nd Revised Edition—John H. Talbott, A.B., M.D., D.Sc. (Hon.), Professor of Medicine, University of Buffalo School of Medicine. Grune & Stratton, New York, 1957. 205 pages, $6.75.

HARVEY, WILLIAM—His Life and Times: His Discoveries: His Methods—Louis Chauvois. Philosophical Library, New York, 1957. 271 pages, $7.50.

J.A.M.A. CLINICAL ABSTRACTS OF DIAGNOSIS AND TREATMENT—Published with the Approval of the Board of Trustees, American Medical Association—Intercontinental Medical Book Corporation with Grune & Stratton, Inc., New York, 1957. 564 pages, $5.50.

MANAGEMENT OF THE PATIENT WITH HEADACHE—Perry S. MacNeal, M.D., F.A.C.P., Physician to Pennsylvania Hospital, Assistant Professor of Clinical Medicine, Jefferson Medical College; Bernard J. Alpers, M.D., Sc.D. (Med.), F.A.C.P., Professor and Head of the Department of Neurology, Jefferson Medical College; and William R. O'Brien, M.D., F.A.P.A., Psychiatrist and Head of the Department of Psychiatry, Pennsylvania Hospital; Instructor in Psychiatry, Jefferson Medical College. Lea & Febiger, Philadelphia, 1957. 145 pages, $3.50.

OBESITY—Its Cause, Classification, and Care—E. Philip Gelvin, M.D., Associate in Medicine, and Thomas H. McGavack, M.D., Professor of Clinical Medicine, both New York Medical College, Flower and Fifth Avenue Hospital, New York, Hoeber-Harper Book, Paul B. Hoeber, Inc., 49 East 33rd St., New York 16, N. Y., 1957. 146 pages, $3.50.

PERIPHERAL CIRCULATION IN HEALTH AND DISEASE—Walter Redisch, M.D., F.A.C.P., Associate Professor of Clinical Medicine, New York University; and Francisco F. Tangco, M.D., B.S., Assistant Professor of Medicine, University of the Philippines Medical School, Manila; with a special section by R. L. deC. H. Saunders, M.D., F.R.S.E., Professor and Head of the Department of Anatomy, Dalhousie University Medical School, Halifax, Nova Scotia. Grune & Stratton, New York, 1957. 154 pages, $7.75.

PRACTICAL CLINICAL PSYCHIATRY—8th Edition—Jack R. Ewalt, M.D., Clinical Professor of Psychiatry, Harvard Medical School; Edward A. Strecker, M.D., Sc.D., LL.D., formerly Professor of Psychiatry, University of Pennsylvania School and Graduate Medical School; and Franklin E. Ebaugh, M.D., Clinical Professor of Psychiatry, University of Colorado School of Medicine. The Blakiston Division, McGraw-Hill Book Company, New York, 1957. 457 pages, $8.00.

PRACTICAL REFRACTION—Bernard C. Gettes, M.D., Assistant Professor of Ophthalmology, Graduate School of Medicine, University of Pennsylvania. Grune & Stratton, New York, 1957. 170 pages, $6.50.

Physicians Asked to Report Suspected Influenza Cases

An editorial in a recent issue of the *Journal of the American Medical Association* urges all physicians to report any suspected cases of Oriental influenza immediately to their health departments.

Epidemics of influenza have swept various Far Eastern countries, and U. S. Public Health Service officials expect outbreaks to occur in the United States as more travelers return from the Orient.

By reporting any suspected cases to local health departments, the cases can be quickly investigated and laboratory diagnosis made, the editorial said. U. S. Public Health Service epidemic intelligence officers assigned to state and local health departments will assist in such investigations.

The editorial also pointed out that as new developments occur, the medical profession will be kept informed through medical channels. In the meantime, "full advantage" should be taken of the resources of the state and local health departments. They are in constant receipt of information and have lists of laboratories with facilities for diagnosing influenza.

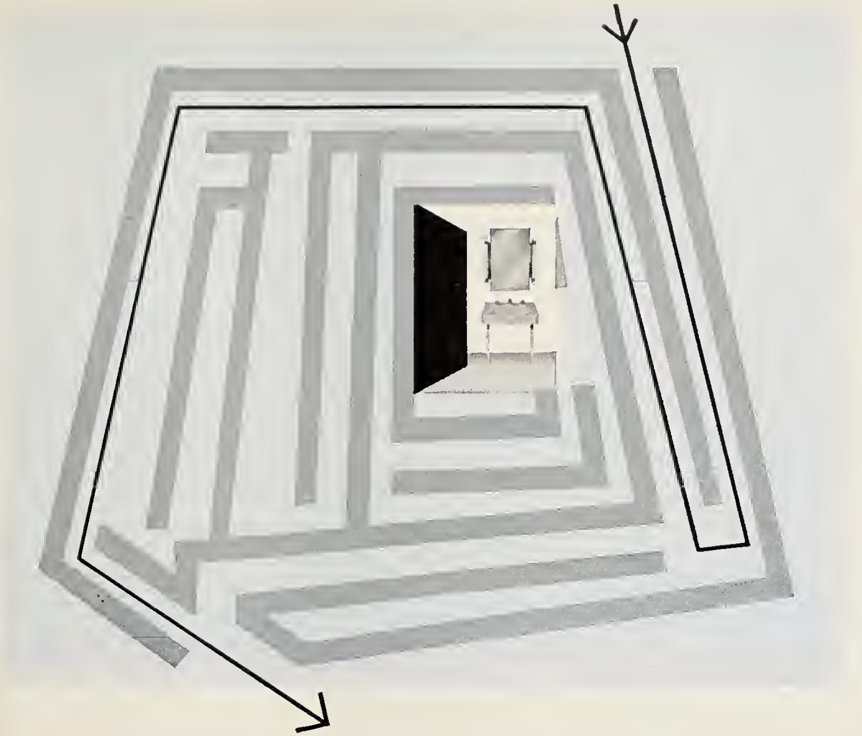
A center for epidemic intelligence is being maintained in the National Office of Vital Statistics of the Public Health Service, and summaries of this information appear weekly.

In addition to following the epidemics in the Far East and on commercial and U. S. Navy vessels, the U. S. Public Health Service and the World Health Organization have set up an extensive program for tracing and preventing outbreaks in the United States.

The disease, caused by a new form of type A influenza virus, has typical influenza symptoms: rapid onset, fever, general tiredness, muscle aches, and running nose. It lasts three to five days. Attack rates have been as high as 19 per cent, although mortality rates have been less than 1 per 1,000 cases. Most deaths occurred in infants and persons already weakened by age, chronic illness or hunger.

Preparation for including the new virus strain in influenza vaccine is already underway, the editorial said. U. S. Public Health Service and World Health Organization departments are cooperating with manufacturers in preparing the vaccine. The Department of Defense is planning to use this new vaccine among its personnel in the fall.

Foreign quarantine inspectors stationed at all international seaports and airports are advising travelers from the Orient to see their private physicians if they develop a respiratory illness within 10 days after their arrival. The names and addresses of passengers who have a respiratory illness upon arrival are forwarded to health officers in the communities to which they are going.



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CLASSIFIED ADVERTISEMENTS

(Continued from Front Advertising Section Page 46)

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Physicians Suggest Possible Cause of Sarcoidosis

Researchers have found some evidence as to the cause of an unexplained disease by studying changes in the disease symptoms during pregnancy.

The physicians made their report on sarcoidosis and pregnancy in a recent issue of the *Journal of the American Medical Association.*

Sarcoidosis is a chronic infectious disease of unknown cause, which produces tumor-like lesions in the skin, lymph nodes, salivary glands, eyes, lungs, bones, and nearly every other part of the body.

The physicians studied 10 patients with the disease as they went through 16 pregnancies over a period of eight years at the Hospital of the University of Pennsylvania, Philadelphia.

Two facts noted in the study led them to suggest that sarcoidosis may be a "disease of hypersensitivity" like rheumatoid arthritis, hay fever, and several other illnesses: (1) although sarcoidosis has been thought to be caused by tuberculosis, pregnancy affects the two diseases differently, and (2) the same drugs as those used in hypersensitivity seemed helpful to women with sarcoidosis.

The physicians found generally that pregnancy had a "beneficial effect on sarcoidosis that is frequently lost after delivery." Improvement occurred in eight of the 10 patients during pregnancy; in two there was no change. Except for the development of skin lesions of the leg in one patient, no worsening of the disease during pregnancy was noted. Relapse frequently occurred after delivery and four patients developed new symptoms immediately after delivery.

Tuberculosis is still considered as a possible cause of sarcoidosis, but other studies have shown that tuberculosis does not improve and is probably aggravated during pregnancy. The improvement in sarcoidosis during pregnancy would rule out tuberculosis as a cause unless the "ancient argument" of the presence of a "different" kind of tuberculosis is used, the authors said.

However, improvement during pregnancy with subsequent relapse after delivery has been reported in diseases of hypersensitivity, such as hay fever, asthma, psoriasis, fibrositis, and rheumatoid arthritis. In addition, sarcoidosis is frequently associated with bodily changes which also occur in diseases of hypersensitivity.

Treatment with synthetic adrenal hormones, which has been successful in the hypersensitivity diseases, also improves sarcoidosis, they said. The improvement during pregnancy may be due to an increase in adrenal hormone production during pregnancy. The new symptoms in four patients after delivery may have been due to simple progression of the disease, they said, but more likely they represented a so-called "rebound relapse" previously

(Continued on Page 78)

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- "In the patients with functional disturbances of the colon with a high emotional overlay, this has been to date a most effective drug."[5]

References: 1. Borrus, J. C.: *M. Clin. North America,* n press, 1957. 2. Gillette, H. E.: *Internat. Rec. Med. & G. P. Clin.* 169:453, 1956. 3. Pennington, V. M.: *J.A.M.A.,* n press, 1957. 4. Cayer, D.: Prolonged Anticholinergic Therapy of Duodenal Ulcer. Am. J. Dig. Dis. 1:301-309 July) 1956. 5. McGlone, F. B.: Personal Communication to Lederle Laboratories. 6. Texter, E. C., Jr.: Personal Communication to Lederle Laboratories. 7. Bauer, H. G. nd McGavack, T. H.: Personal Communication o Lederle Laboratories.

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Population's Natural Immunity to Polio Increasing

(Continued from Page 64)

piratory tract of patients or carriers to other persons, who in turn become carriers and usually develop immunity without developing active cases of the disease.

Just how this process works in a population is not completely understood, they said. But it is known that as more people are exposed to the virus, more develop natural immunity and fewer develop actual cases of polio.

Dr. Vought is associate medical director of Bristol Laboratories, Inc., and Dr. Greenberg is public health director of the bureau of preventable diseases, of the New York City Department of Health.

Physicians Suggest Possible Cause of Sarcoidosis

(Continued from Page 74)

described after treatment with synthetic hormones.

Since pregnancy does not exert a harmful effect on sarcoidosis, termination of the pregnancy is rarely necessary, the authors said. However, the possible harmful effects of sarcoidosis on pregnancy need more study. Among the 16 pregnancies there were two miscarriages and three congenital abnormalities in the infants.

The authors are Drs. Robert L. Mayock and Roy R. Greening, Hospital of the University of Pennsylvania; Dr. Robert D. Sullivan, Veterans Administration Hospital, New York, and Dr. Ralph Jones Jr., Jackson Memorial Hospital, Miami, Fla.

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(1) *Masters, W.H., J. Am. Ger. Soc. 3:31, 1955*
(2) *Kinsell, L.W., Ibid 3:389, 1955*
(3) *Ingle, Endocrinology 50:1, 1952*
(4) *Kaufman, W., J. Am. Ger. Soc. 3:927, 1955*
(5) *Jayne, E.P., J. Geront, 12:1, 1957*

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Visual-aids Used for Physician-Patient Interview

Visual education has moved into the physician's office.

Writing in a recent issue of the *Journal of the American Medical Association*, Dr. John B. Gregg, Sioux Falls, South Dakota, an otolaryngologist, told how he uses slide films to show patients exactly what is the matter with them.

He has found that interview time can be cut by one third to one half by using pictures. In addition, pictures help the patient to better understand his ailments. In some cases pictures have helped convince patients of the need for operations and have helped allay needless fears, Dr. Gregg said.

He first used pictures from medical publications, but they were cumbersome and soon became tattered from use. He next used a hand slide viewer, but this was time consuming if more than one person looked at the slide. Now he projects the pictures on the wall.

In an average office day, the slides are used two or three times, he said.

Educating patients about medical problems is one of the duties of the physician, but it is frequently neglected because it is so time consuming, he said. The physician-patient relationship breaks down. By using visual education in the office, "greater understanding can be achieved in less time and with less effort," Dr. Gregg concluded.

Parents Respond Emotionally to Child's Hospitalization

The personal handling of a hospitalized child by physicians and nurses is just as important to his parents as his medical care and treatment, three San Francisco researchers stated.

In a report on the reactions of 100 parents whose children were hospitalized, they said that hospitalization is as hard on the parents as on the child and that modifications in hospital routine and adequate explanations by the physician can do much to ease the parents' anxiety and their children's.

The report, by Dr. Helen Gofman, Wilma Buckman, M.S.W., and Dr. George H. Schade of the University of California Medical Center, appeared in a recent issue of the *Journal of Diseases of Children*, published by the American Medical Association.

The findings of this study of parents correspond to those of an earlier study on children's emotional response to hospitalization, which the authors reported in a recent issue of the *Journal of Diseases of Children.*

Of the 100 parents interviewed on the child's admission, all expressed anxiety regarding separation from their child. In 57 their anxiety was "overwhelming" and the parents "had such difficulty in coping with their own fears and anxieties that they were unable to give support to their child," the authors said. They dreaded leaving the child and feared that understanding care would not be given.

However, when 68 parents were interviewed on their children's discharge, 44 parents felt better about the hospitalization than they had on admission, mainly because of the "friendly personal handling" of their child by the hospital staff. Of the 24 parents whose attitudes did not change, 18 commented on the importance of their child's personal care by the nurses and doctors. One comment was:

"We were relieved when we visited to see him happy and content—of course, he wanted to go home. We noticed how the other children felt about the nurse, how they seemed at home and content. You can learn much by a child's reaction; they're honest about how they've been treated. The nurses were kind like mothers would be to children."

The authors pointed out that it is necessary for the physician to explain as fully as possible to the parents about: Why the child is being hospitalized; what procedures and treatment will be necessary; the risk and discomfort involved, and what to expect in the way of hospital facilities and routine. This includes admission procedures, visiting hours, whether the child will be with other children, whether he can walk around, what toys he may bring to the hospital, the availability of a school teacher, and the availability of toys, television and other facilities to help occupy and distract him.

Inadequate preparation of the parents reflected on their own poor (or lacking) preparation of the child for hospitalization. Seventy-six of the parents had not received adequate explanations and 53 of them had not even told their children they were going to the hospital.

The authors also noted that the preparation must be continued throughout hospitalization—by explaining each new procedure. Some parents felt their greatest anxiety when they went to visit and discovered something new about their child, such as having his head newly shaved.

Anxiety also can be reduced, the authors said, by admission procedure changes which allow for a more gradual separation of the parents from the child and by extending visiting hours.

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Brucellosis Acquired During Cattle Vaccination

A case of brucellosis in a physician-rancher who accidentally sprayed his face and eyes with vaccine while vaccinating cattle for Bang's disease was recently reported in the *Journal of the American Medical Association* by Dr. Joseph F. Sadusk, Jr., Oakland, Calif., and Alcor S. Browne, Ph.D., and Dr. James L. Born, Berkeley, Calif.

Brucellosis, also called undulant or Malta fever, is a generalized infection with such symptoms as fever, lassitude, weakness, headache, sore throat, and anemia. Bang's disease, its counterpart in animals, leads to abortion among cattle. The disease is usually acquired by man through drinking contaminated milk.

The physician-rancher was using a vaccine containing low-potency living Brucella abortus organisms. The needle accidentally blew off the syringe and the vaccine sprayed on his face.

Thirty-one days after the accident he became ill. Although his symptoms were similar to a common respiratory illness, blood tests verified the diagnosis of brucellosis. He was treated with antibiotics even after discharge from the hospital to prevent a relapse or a chronic subacute form.

Four similar cases of the disease acquired by accidentally spraying the eyes or puncturing the skin with the needle have been reported, the authors said. The cases were all in veterinarians. Two of these also resulted when the needle blew out of the syringe. This indicates the need for using syringes that lock the needles in place, the authors said.

Few cases of accidental infection with Brucella abortus vaccine have been reported, either because they "are truly rare" or because the diagnosis is not ordinarily made since the symptoms resemble common respiratory illnesses. However, physicians should recognize the possibility of such infection and make appropriate laboratory tests.

It is clear that the living Brucella abortus vaccine is "not without its dangers of infection to humans." Therefore, vaccinations of cattle should be done by persons qualified in its use and cognizant of its dangers, the authors concluded.

Researchers Note Exception To Biological Law

A biological law which says that the living body always refuses to produce antibodies against itself—although it does produce them against substances from outside—may have an exception it was reported recently.

Evidence that chronic inflammation of the thyroid gland is caused by this exception to the rule was reported in a recent issue of the *Journal of the American Medical Association* by Dr. Ernest Witebsky and associates of the University of Buffalo School of Medicine and Buffalo General Hospital.

Their findings and method of study might also help reveal the mechanism behind other diseases suspected, but not proved, to occur in the same way, they said. These include certain diseases of the blood known as dyscrasias. The researchers explained that for many years only "foreign" substances from other species were considered as real producers of antibodies.

Although research has indicated it is possible for antibodies to appear which are directed against members of the same species, there has been no proof that this might occur within the same individual.

Now, however, Dr. Witebsky and associates have reported evidence that extract from the thyroid gland can produce this antibody effect "within the same species and even within the same individual under certain experimental conditions."

They succeeded in producing autoantibodies in dogs, rabbits, and guinea pigs by injecting them with their own thyroid extract. The material which apparently caused the reaction was thyroglobulin, a material known to contain antithyroid substances. They also discovered that the injections produced considerable damage to the cell structure of the animals' thyroid glands.

Noting that cell changes among human thyroiditis patients were similar to those among experimental animals, the researchers studied a number of patients with various thyroid gland diseases. Antibodies against thyroid extract were found in 12 patients with thyroiditis but not among those with other types of thyroid disease. Further laboratory tests supported their theory that the antibodies were produced by the individual and were directed specifically against his own thyroid extract.

They said it appears, therefore, that chronic thyroiditis is caused by a slow but constant release of thyroglobulin into the blood stream, where it serves as a constant "depot" for antibody-antigen reactions. No explanation for this release of the thyroglobulin, however, has been found. Ordinarily this material is broken down by enzymes before it leaves the gland.

They said their study meets four requirements for proof of autoantibody formation in disease: (1) Demonstration of circulating, active antibodies; (2) recognition of the specific material against which the antibodies are directed; (3) production of antibodies against the same material in experimental animals, and (4) appearance of cell changes in experimental animals similar to those found in the human disease.

Co-authors of the report with Dr. Witebsky were Noel R. Rose, Ph.D., and Drs. Kornel Terplan, John R. Paine, and Richard W. Egan.

American Medical Association Council Issues Meprobamate Warning

The American Medical Associations' Council on Drugs recently issued a warning about the potential hazards of the tranquilizing drug meprobamate (Miltown, Equanil).

The report in a recent issue of the *Journal of the American Medical Association* said the drug's extensive use since its introduction two years ago has been "based on the assumption that large doses of the drug can be administered with practically no side effects."

However, as the use has multiplied, it has become increasingly apparent that meprobamate is capable of producing "a rather wide variety of side effects and untoward reactions."

The listing of adverse side effects does not necessarily mean that the "usefulness of meprobamate is outweighed by its potential side effects," the report said. It is intended to point out that side effects and untoward reactions "can and do occur and that the drug should be administered with the same discretion" as other drugs.

Hypersensitivity reactions, including skin rashes, itching, shaking chills, and fever, have occurred with sufficient frequency to indicate that these are definite and relatively frequent complications, the report said.

There have been several reports of acute meprobamate intoxication, resulting usually from deliberate swallowing of very large amounts of the drug. None of these attempts at suicide have been successful, but alarming central nervous system symptoms have occurred.

No definite antidote or treatment for overdosage has been devised; therefore it is important to prescribe meprobamate with discretion and in small quantities, if at all, for patients who may have suicidal tendencies, the report said.

There is also evidence that meprobamate possesses habit-forming properties. Withdrawal symptoms, including convulsions, have been observed when the drug has been discontinued after long use. In addition to this physical dependence, psychological dependence with a tendency toward excessive self-medication is "undoubtedly created" in certain patients, the report said. Some patients may also need larger and larger doses to maintain the same tranqualizing effect; the chances of overdosage and acute intoxication are then appreciably increased.

Since the drug is intended primarily for those with emotional instability, the possibility of emotional complications must be recognized for intelligent use of the drug, the report said.

A variety of other side effects, including drowsiness, stomach and intestinal upsets, and muscular reactions, also have been noted.

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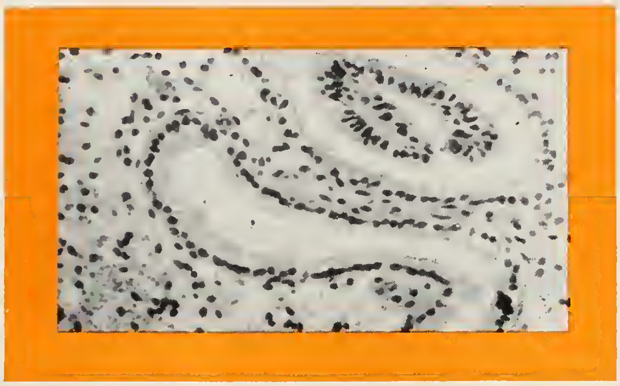

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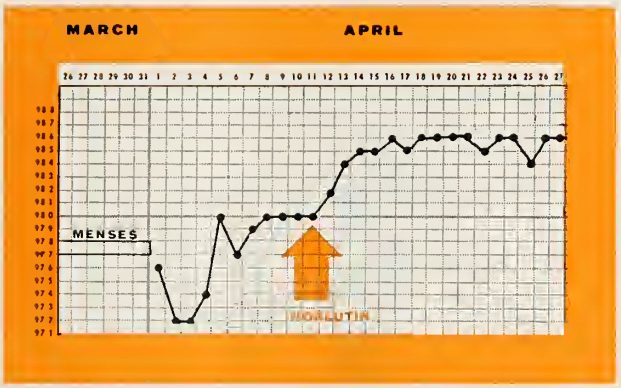

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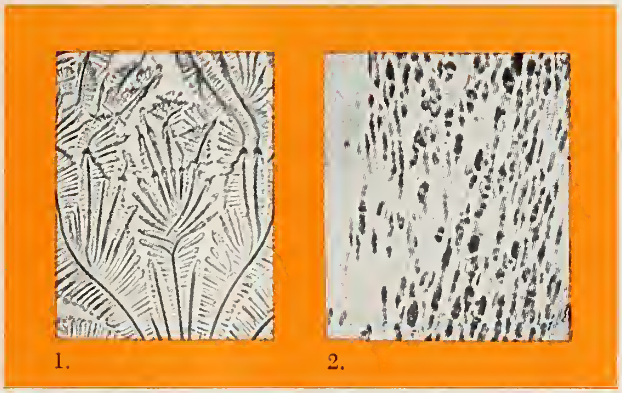

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Children's Sports Need Good Leadership

The value of organized athletic programs for children depends entirely on leadership, which too often is inadequate, a Florida college physical education professor recently said.

Kenneth D. Miller, Florida State University, Tallahassee, Fla., said that children's athletic programs are a "relatively recent phenomenon," but already the organization of leagues in baseball, basketball, football, and other sports for boys as young as six years has become "a commonplace occurrence" in practically every community.

Sports can be "a powerful tool in teaching habits, attitudes, and characteristics of good citizenship, but they can be just as effective in producing negative results," he said in a recent issue of *Today's Health,* popular health magazine of the American Medical Association.

For children's leagues to be successful and valuable to the child, they must have trained leaders who know something about child growth, development, and psychology, who understand the values sought in sports, and who place the welfare of the children "above all other aspects of the program," he said.

Sports activities for elementary school children

(Continued on Page 22)

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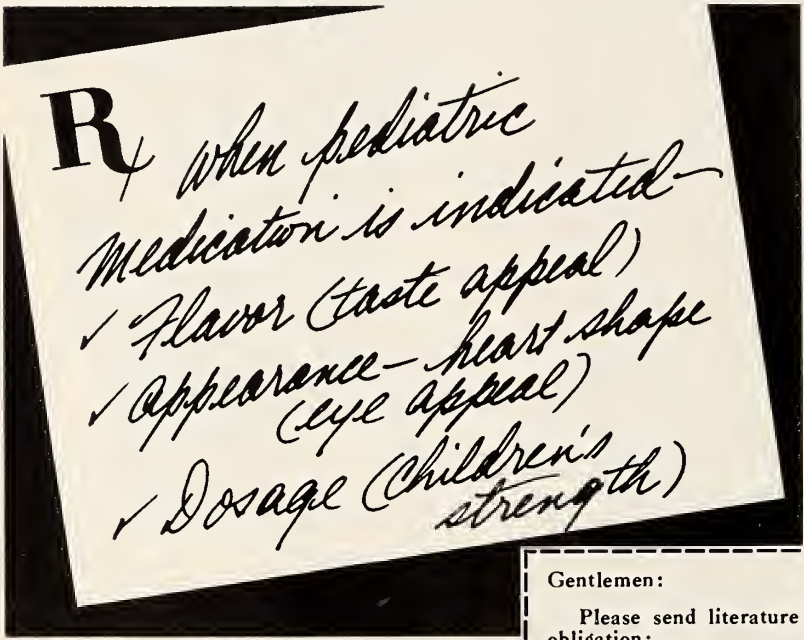

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Arcofac

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Children's Sports Need Good Leadership

(Continued from Page 18)

should consist of activities and competition conducted sanely in terms of childhood activities rather than through adult interests and activities merely scaled down to "youngster size."

The first, second, and third-grader is just not able to play the highly organized adult versions of baseball, basketball, and football. The frustrations that result from his inability to succeed may well make him thoroughly dislike athletics.

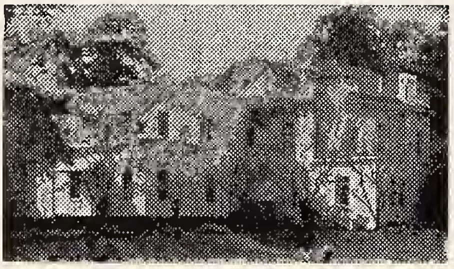
A check list, which provides an effective device for evaluating athletic plans for youngsters, has been made up by representatives of the American Association for Health, Physical Education and Recreation, the department of elementary school principals of the National Education Association, and the National Council of State Consultants in Elementary Education.

Its main points are:

1. Are the leaders professionally qualified? Are they interested only in the welfare and happiness of boys and girls, or do they seek personal advantage—publicity, status, or financial gain?

2. Are the proposed sports and other activities appropriate to the age, maturity, skill, stage of growth, and physical makeup of the children?

(Continued on Page 24)



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(Continued from Page 22)

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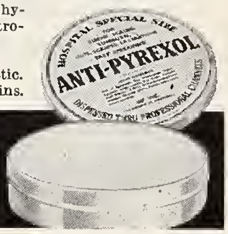

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CALIFORNIA—WANTED ASSOCIATE PERCENTAGE BASIS E.E.N.T. OR MAJOR IN E.N.T., and capable of doing office ophthalmology or vice versa. Very large practice. Give full information, and if possible photograph in first letter. Box 93,565, California Medicine.

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(Continued on Page 54)

3,804 New Physicians Licensed in United States

The physician population of the United States increased by 3,804 in 1956, according to the annual report on physician licensure by the American Medical Association's Council on Medical Education and Hospitals.

Actually 7,463 physicians received their first licenses to practice medicine and surgery in 1956. However, 3,659 physicians died during the year. Subtracting this number from the number licensed for the first time leaves a gain of 3,804 in the total American physician population.

The council's 55th annual report appeared in a recent issue of the *Journal of the American Medical Association.*

State and territorial boards issued 14,543 licenses during the year, but 7,080 went to doctors already holding licenses from another state or to men who took examinations in more than one state.

Of the total licenses given, 7,122 were by written examination and 7,421 by interstate reciprocity and other methods. Compared with 1955, a near-record year exceeded only by 1946 and 1954, there was a decrease of 297 in the total number of licenses issued.

Most candidates who received licenses by examination came from the 76 approved four-year medical schools in this country and 11 in Canada. The rest were from foreign schools, unapproved schools, schools of osteopathy, and schools no longer operating. Only 4.5 per cent of the 6,149 graduates of approved American schools failed to get licenses. Most failures occurred among graduates of foreign, unapproved or osteopathic schools.

The greatest number of licenses (1,745) was issued by California. New York issued 1,355. More than 500 each were given in Florida, Illinois, Michigan, Ohio, Pennsylvania, and Texas. South Dakota granted the smallest number—18.

The greatest number of graduates from any one school examined was 231 from the University of Tennessee, a state university. The greatest number examined from a private school was 175 from Tulane University School of Medicine. Twenty-seven schools each had more than 100 of their graduates examined for licensure.

Graduates of the new University of Miami School of Medicine, Coral Gables, Fla., and the University of Puerto Rico School of Medicine appeared before medical examining boards for the first time. All 26 of the University of Miami graduates passed.

Eight other schools also had no failures among their graduates. They are Albany Medical College, Albany, N. Y.; Woman's Medical College of Pennsylvania, the Medical College of South Carolina, the University of California at Los Angeles and San Francisco, and the Universities of Southern California, Washington, and Wisconsin.

(Continued on Page 38)

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for relief that lasts—longer

in *TRIGGER POINT TENDERNESS*—
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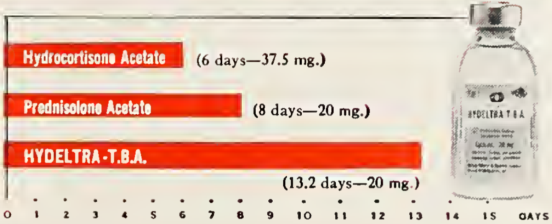

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BOOKS RECEIVED

Books received by CALIFORNIA MEDICINE *are acknowledged in this column. Selections will be made for more extensive review in the interests of readers as space permits.*

ATLAS OF CARDIAC SURGERY, AN—Jorge A. Rodriguez, M.D., Assistant Professor of Surgical Anatomy and Research Association, Department of Surgery, University of Mississippi Medical School. W. B. Saunders Company, Philadelphia, 1957. 250 pages, $18.00.

ATLAS OF THE COMMONER SKIN DISEASES, AN—Fifth Edition—Henry C. G. Semon, M.A., D.M. Oxon., F.R.C.P. London—Revised with the Collaboration of Harold T. H. Wilson, M.A., M.D., Cantab., M.R.C.P., D.T.M. The Williams and Wilkins Company, Baltimore, 1957. 375 pages, with 153 plates reproduced by direct color photography from the living subject, $20.00.

CHRONIC ILLNESS IN THE UNITED STATES—Volume 1—Prevention of Chronic Illness—Commission on Chronic Illness. Published for The Commonwealth Fund by Harvard University Press, Cambridge, Massachusetts, 1957. 338 pages, $6.00.

DERMATOLOGIC FORMULARY — Frances Pascher, M.D., Editor, Hoeber-Harper, New York, 1957. 172 pages, $4.00.

DIAGNOSIS AND TREATMENT OF PULMONARY TUBERCULOSIS, THE—Second Edition—Paul Dufault, M.D., Medical Director of the Rutland State Sanatorium, Massachusetts Department of Public Health. Lea & Febiger, Philadelphia, 1957. 426 pages, $9.00.

FOOT TROUBLES—T. T. Stamm, F.R.C.S. The Philosophical Library, 15 East Fortieth Street, New York 16, N. Y., 1957. 122 pages, $4.75.

GYNECOLOGIC SURGERY AND UROLOGY—Thomas L. Ball, M.D., Assistant Professor of Clinical Obstetrics and Gynecology, Cornell University Medical College. The C. V. Mosby Company, St. Louis, 1957. 547 pages, 161 full-page plates, $20.00.

MEDICAL PHYSIOLOGY — Tenth Edition — Edited by Philip Bard, Professor of Physiology, School of Medicine, The Johns Hopkins University. The C. V. Mosby Company, St. Louis, 1956. 1421 pages, $14.00.

METHODOLOGY OF THE STUDY OF AGEING—Ciba Foundation Colloquia on Ageing—Volume 3—G. E. W. Wolstenholme, O.B.E., M.A., M.B., B.Ch., and Cecilia M. O'Connor, B.Sc., Editors for the Ciba Foundation, Little Brown and Company, Boston, 1957. 202 pages, 47 illustrations, $6.50.

PATHOLOGY—Third Edition—W. A. D. Anderson, M.A., M.D., F.A.C.P., F.C.A.P. Professor of Pathology and Chairman of the Dept. of Pathology, University of Miami School of Medicine; Director of Pathology Laboratories, Jackson Memorial Hospital, Miami. The C. V. Mosby Company, St. Louis, 1957. 1402 pages, 1294 illustrations, 11 color plates, $16.00.

PRACTICAL OTOLARYNGOLOGY—Gervais Ward McAuliffe, M.D., F.A.C.S., F.I.C.S., Associate Clinical Professor of Otolaryngology, Cornell University Medical College. Landsberger Medical Books, Inc. Distributed by the Blakiston Division of the McGraw-Hill Book Co., 330 West 42nd Street, New York, 36, N. Y., 1957. 320 pages, $7.00.

PRACTITIONER'S CONFERENCES—Held at the New York Hospital-Cornell Medical Center—Volume 6—Edited by Claude E. Forkner, M.D., F.A.C.P., Professor of Clinical Medicine, Cornell University Medical College. Appleton-Century-Crofts, Inc., New York, 1957. 378 pages, $6.75.

PROGRESS IN PSYCHOTHERAPY—Volume II, Anxiety and Therapy—Edited by Jules H. Masserman, M.D., Professor of Neurology and Psychiatry, Northwestern University; and J. L. Moreno, M.D., New York University, N. Y. C., Grune & Stratton, New York, 1957. 264 pages, $7.50.

(Continued in Back Advertising Section Page 100)

Unusual Reaction to Exercise Found Among College Men

Overstrenuous exercise in fraternity hazings or friendly competition has been singled out as the cause of a mild temporary ailment, resembling a symptom of serious kidney disease, among five male college students.

The condition, which consisted largely of sore muscles and the appearance of red blood cells in the urine, was named "exercise myohemoglobinuria" by Dr. William C. Stahl, Columbus, Ohio, in a recent issue of the *Journal of the American Medical Association.*

Dr. Stahl said he diagnosed the condition in five Ohio State University students after strenuous exercise in friendly competition, in fraternity hazing, or in an attempt to "get into better condition." He said it resembles "march hemoglobinuria," so named because reported cases occurred after marching, strenuous walking or running. This disease, first known in 1881, was always associated with exercising in an erect posture. The Ohio students who developed the condition had been doing sit-ups, push-ups, or other non-erect exercises.

Dr. Stahl said two of his patients developed it after doing more than 150 knee-bends "for fun to see who could do the most." Another student had done about 200 push-ups in an hour to "get into condition," while the other two students had been made to do push-ups, sit-ups and general calisthenics for three nights "for various periods to the point of exhaustion and with no sleep."

Although the illness disappeared in a few days without treatment, the first patient had been hospitalized as soon as he came to the health service, because his symptoms suggested he might have acute glomerular nephritis, a serious kidney disease. Dr. Stahl said the health service staff had "all heard of march hemoglobinuria but none of us among the more recent staff members had seen a case." Only 75 cases are known in medical literature.

The probable cause among the students was breakdown of muscle fibers due to extreme exercise, releasing hemoglobin into the blood stream and then through the kidneys.

Dr. Stahl said he was sure other cases have occurred but not been diagnosed, because of lack of information, or because students did not report it due to "mildness of symptoms or because of the fear of getting into trouble with their fraternities."

"It is interesting to note that all the patients whose cases have been reported in the literature were young, athletic white men. No cases have been reported among women or in any other race . . . ," he said. "It would be interesting to conduct an experiment with a group of college students, male and female, and of different races" to see if the illness could be duplicated.

You can't get blood out of a turnip

...AND YOU CAN'T BUILD BLOOD WITHOUT AMINO NITROGEN

Protein is essential to hemoglobin production. A protein deficiency limits hemoglobin synthesis. Boyle's new Glytinic with glycine supplies amino nitrogen, the important structural element of the protein—hemoglobin. It is utilized in both the porphyrin and globin portions of the hemoglobin molecule. Ferrous gluconate provides the iron.

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supplies 100 mg. of ferrous iron in the daily dose of only 2 tablespoonfuls of liquid or 4 tablets. Available in liquid or tablet form at all pharmacies.

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Daily dose of 2 tablespoonfuls or 4 tablets of Glytinic contain: Ferrous Gluconate, 13.5 gr.; Aminoacetic Acid, 1.3 Gm.; Vitamin B-12, 10.0 mcgm.; Thiamine HCl, 7.5 mg.; Riboflavin, 7.5 mg.; Pyridoxime HCl, 2.25 mg.; Niacinamide, 45.0 mg.; Panthenol, 6.5 mg.; Liver Fraction 1, NF, 5.0 gr.; Cobalt, 0.05 mg.; Manganese, 5.0 mg.

3,804 New Physicians Licensed in United States

(Continued from Page 28)

Foreign school graduates, including both American and foreign-born persons, took 1,783 examinations, with 1,012 passing. This is a slight decrease from the number who passed in 1955. There were 852 foreign-trained physicians who received their first American licenses. Of these, 834 received their licenses by examination and 18 by endorsement of credentials. These physicians represented medical schools in the Philippines, New Zealand, 16 South and Central American counties, 24 European countries, and 13 Asian countries.

The number of licenses issued on the basis of geographical areas were: New England, 407; Middle Atlantic, 1,532; East North Central, 1,437; West North Central, 824; South Atlantic, 1,210; East South Central, 469; West South Central, 624; Mountain, 175; Pacific, 720, and territories and possessions, 65.

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PAGE 28

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For Diseases of the Chest *Monrovia, California*

AN INSTITUTION FOR DIAGNOSIS AND THERAPY

(Established 1903)

CHOICE ROOMS and BUNGALOWS. Rates moderate and include routine medical and nursing services, interim physical, x-ray and laboratory examination, ordinary medicines and treatments.

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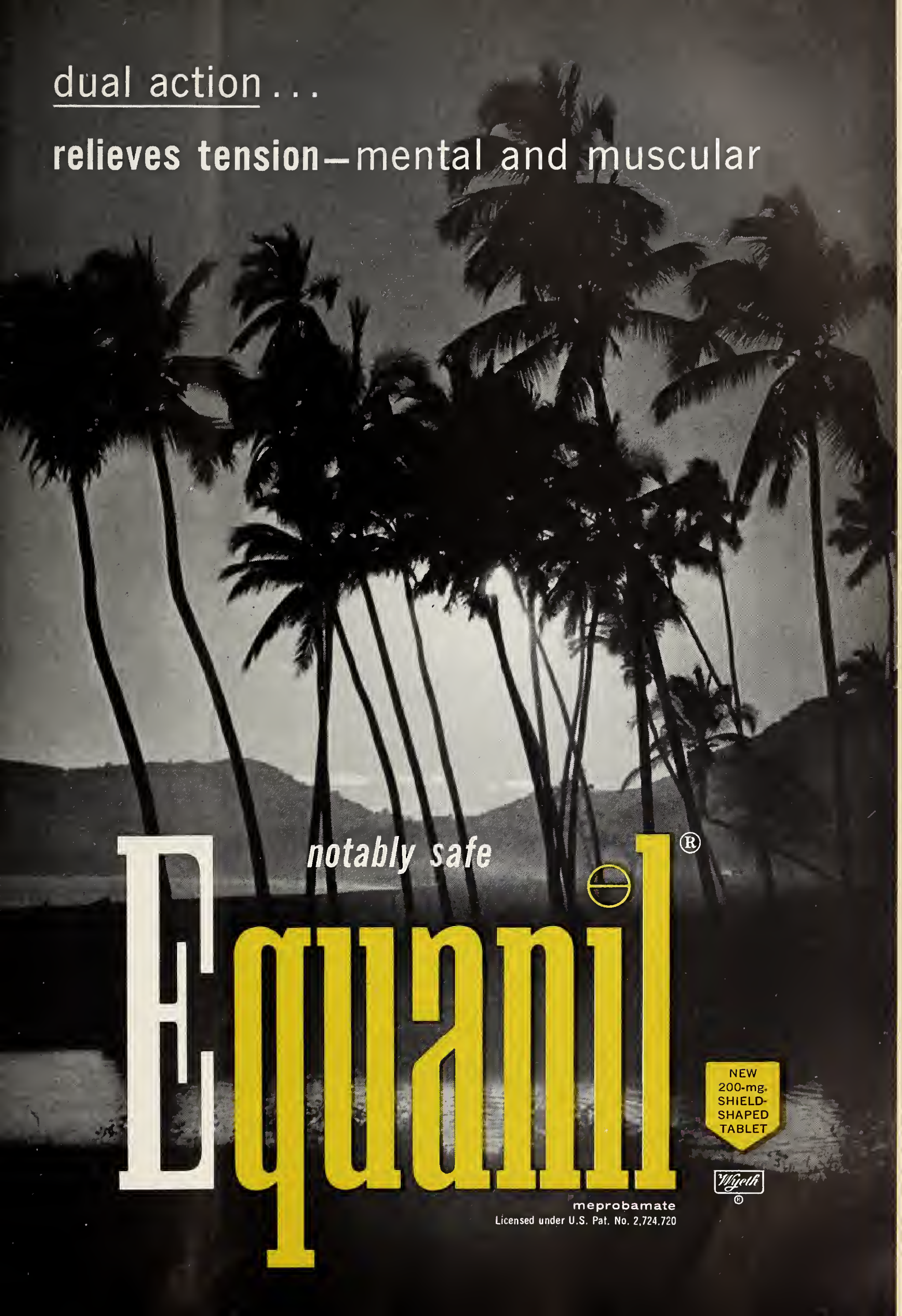

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SHIELD-
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Intermediary Home-Town Care

The recent history of the Home-Town Care program indicates clearly that the VA wishes to regain complete control of outpatient care for veterans with service-connected disabilities—many of whom have been receiving treatment from their own physicians during the postwar period (while the VA has been expanding its outpatient facilities). Curtailment efforts have been chiefly directed at intermediary plans since, in these plans, administration was not completely in VA hands. The VA argued that overlapping administration resulted in excessive costs.

Advantages of Intermediary Programs. The eight states (California, Colorado, Michigan, North Carolina, Oregon, South Dakota, Washington, Wisconsin) and Hawaii, which have intermediary plans, feel that this is by far the best method of providing Home-Town Care and have asked the Council on Medical Service to recommend it to other states. Among the advantages named are: (1) This system ensures freedom of choice of physician for the service-connected veteran who receives the care; the VA cannot designate which physicians in the state may treat veteran patients. (2) As a corollary, the veteran may obtain care in his own community, thus providing better continuity of care. Where only a limited number of physicians may provide Home-Town care, the veteran may have to leave his community for treatment. (3) The individual physician is protected, since his contact with the VA is through the intermediary. When negotiations are carried on with the entire medical profession within the state, discussion with the VA is on a more nearly equal basis than when physicians are dealt with individually. (For example, some cases have been reported where, under the "designated physician" system, the VA has assigned a disproportionately large number of cases to doctors who will accept a relatively low fee.) (4) Some states have avoided intermediary plans because they have too few veterans receiving Home-Town Care to make the complications inherent in setting up a third-party arrangement worth while. Today, with Medicare contracts in effect in most states, the intermediary is already in existence and little administrative addition would be required to adapt the same organization to Home-Town Care. (5) The eight states and Hawaii, by acting together, have postponed the VA's curtailment of intermediary plans. Additional states with intermediary contracts would increase the strength of the medical profession in this area and would give firmer control of the medical aspects of the program to the physician.

Expansion of Intermediary Programs. Some state associations have been unaware that Home-Town Care could be provided through an intermediary. At the New York Conference on Veterans Affairs, held recently, much interest was expressed by state

(Continued on Page 46)

CONDITIONED RESPONSE THERAPY
(with year's series of reinforcements)
in the Treatment of
ALCOHOLISM
Results — Not Theory

"Published reports indicate that, when properly applied, in a hospital exclusively for Conditioned Response Therapy, a four year abstinence rate of 50% and better may be expected."

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MEMBER AMERICAN HOSPITAL ASSOCIATION
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"Exclusively for the treatment of Alcoholism"

“an effective urinary antibacterial agent in children.”[2]

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In children, since “chronic urinary infection is generally the sequel of inadequately treated acute infection,”[3] prompt and adequate therapy with FURADANTIN can prevent irreparable renal damage. FURADANTIN also “has been a safe and effective therapeutic and prophylactic drug for chronic urinary tract infection. . . . We feel the drug should be continued prophylactically for a minimum of several months after the urine has been sterilized.”[1]

FURADANTIN has “yielded a number of striking results in clearing up resistant infections [in children] particularly with A. aerogenes, Pseudomonas aeruginosa, and a few cases of B. proteus. It is generally well tolerated in the recommended dosage schedule.”[4]

In the treatment of Proteus infections, “FURADANTIN Pediatric Suspension [Oral Suspension] 1 teaspoonful four times daily, is the most satisfactory medication, if tolerated. . . . It can be given over a long period without ill effects and is excreted in large amounts in the urine.”[5] In one study, FURADANTIN proved much more effective than any other drug used previously in the treatment of Proteus infections. “We feel that this is especially important since P. vulgaris infections occur rather commonly in infants and children.”[2]

In addition to unexcelled effectiveness against a wide range of gram-positive and gram-negative bacteria, FURADANTIN has a wide margin of safety. Well tolerated, FURADANTIN has proven nontoxic to kidneys, liver and blood-forming organs. No cases of monilial superinfection, crystalluria, or staphylococcic enteritis have ever been reported. In 6 years of extensive use, development of bacterial resistance remains negligible.

AVERAGE FURADANTIN DOSAGE

FURADANTIN ORAL SUSPENSION (25 mg. per 5 cc. tsp.): Average daily dose for children between 15 and 75 lbs., using 5 cc. teaspoon, is given below. Administered 4 times daily with food or milk, it is readily miscible with water, infants' formulae, milk or fruit juices.

15-24 lbs. (7-10 Kg.)	*25-49 lbs. (11-22 Kg.)*	*50-74 lbs. (23-33 Kg.)*	*75 lbs. (34 Kg.)*
½ teaspoonful q.i.d.	*1 teaspoonful q.i.d.*	*2 teaspoonfuls q.i.d.*	*3 teaspoonfuls q.i.d.*

Supplied: Bottle of 60 cc.

FURADANTIN TABLETS: Average dose for children is 5 to 7 mg. per Kg. (2.3 to 3.2 mg. per lb.) in 4 divided doses daily.

Supplied: Tablets of 50 mg. and 100 mg., bottles of 25 and 100.

NOW for hospitalized patients, for severe urinary tract infections when peroral administration of FURADANTIN is not feasible and for serious infections as septicemia (bacteremia) when the bacterium is sensitive.

NEW, LIFESAVING **FURADANTIN** *Intravenous Solution*

REFERENCES: 1. Marshall, M., Jr., and Johnson, S. H., III.: J. Urol., Balt. 76:123, 1956. 2. Johnson, S. H., III, and Marshall, M. Jr.: A. M. A. Am. J. Dis. Child. 89:199, 1955. 3. Campbell, M. F.: Modern Med. 24:85, 1956. 4. Engel, W. J.: Med. Clin. N. America, p. 965 (July) 1955. 5. Carroll, G.: Pediat. Clin. N. America, p. 781 (Aug.) 1955.

FURADANTIN SENSI-DISCS

for bacterial sensitivity tests are available from Baltimore Biological Laboratories.

NITROFURANS . . . a *new* class of antimicrobials . . .
neither antibiotics nor sulfonamides

EATON LABORATORIES, NORWICH, N. Y.

Intermediary Home-Town Care

(Continued from Page 42)

association representatives from states which, at present, have either "direct" contracts or no contracts at all for Home-Town Care. (The VA deals directly with individual physicians in both cases.)

In a letter dated October 24, 1955, Dr. Middleton, the VA Chief Medical Director, stated that intermediary administrative costs amounted to over $350,000 in fiscal year 1955 and added, "It is evident that a more efficient operation would result through elimination of such third party agreements."

In a statement published in the April 1957 issue of *Medical Economics*, on the other hand, Dr. Middleton is quoted as saying, "No authoritative cost studies have been made" on the relative costs of VA and Home-Town medical care.

In January 1957, representatives of the eight states with intermediary plans and Hawaii met in Chicago and decided to take joint action to obtain renewal of the intermediary contracts, which the VA planned to discontinue at the end of the fiscal year. A meeting was arranged with Dr. Middleton, at which he said it was neither the desire nor the

(Continued on Page 62)

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Sexual Deviation Results From Parents' Attitudes

Most cases of sexual deviation result from unconscious, or even conscious, fostering of such behavior in early life by the parents, two Minnesota psychiatrists said today.

And these parents behave as they do because of the way their own parents acted toward them, Drs. Adelaide M. Johnson and David B. Robinson, Rochester, Minn., said in a recent issue of the *Journal of the American Medical Association.* They also said these parents all have unsatisfactory marital sexual relationships.

Psychiatric treatment of the adult sexual deviant is a "prodigious task," but prevention in the early years is possible, they said. It is up to the family doctor and pediatrician to watch for early signs of deviation and warn and treat both child and parents.

Drs. Johnson and Robinson recommended that the terms "sexual psychopath" and "psychopathic personality with pathological sexuality" be replaced by the more objective terms, "sexual deviant" and "sexual deviation." These terms include any hostile, destructive sexual behavior manifested toward or accepted from others of the opposite or same sex, and all unacceptable forms of overt sexual behavior.

Parental fostering of sexual deviation parallels that in other types of delinquency, they said. An earlier study showed that repeated stealing, arson and vandalism are stimulated by unconscious or occasionally conscious antisocial impulses in the parents. The parents derive unconscious but real gratification from the enactment by the child of impulses socially forbidden the parent.

In the same way, parents derive satisfaction from their children's abnormal sexual behavior, which the parents have encouraged in some way. Direct, hostile sexual misbehavior usually derives from conscious overt parental fostering, while perverse sexual aberrations usually result from unconscious stimulation by a parent.

"In either case, it is clear that parents who so distort their child's psychosexual development are emotionally very confused, badly maladjusted and definitely sick, belying every outward appearance of their stability in the community. All such parents reveal an unsatisfactory marital sexual relationship," they said.

Antisocial behavior of almost any kind may be fostered by vacillation or "double talk" by the parents. For instance: "Fire-setting is prohibited, but if you must light a fire, let us burn papers in the sink." Another form of double talk is the parentally expressed concern for imagined future sexual misdeeds by the child.

"There may be dire warnings of future sexual

(Continued on Page 54)

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*REFERENCE: J.A.M.A. 163: 359, 1957 (February 2)

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COMPOCILLIN-V is indicated for the treatment of infections produced by penicillin-sensitive organisms in which oral penicillin therapy is known to be effective. These conditions include: *sinusitis*, *bronchitis*, *cellulitis*, *otitis media*, *pharyngitis*, *Vincent's infection*, *erysipelas*, *scarlet fever*, *tonsillitis* and other infectious conditions.

COMPOCILLIN-V may also be used prophylactically before and after such procedures as tonsillectomy and dental extractions; in patients with a history of rheumatic fever; rheumatic heart disease, and other conditions where secondary infection is a recognized danger.

As with the other penicillin compounds, COMPOCILLIN-V is of no value in preventing common colds or influenza. In the presence of severe infection, with or without bacteremia, oral therapy should always
supplemented by parenteral therapy with penicilli

DOSAGE

The initial recommended dose in acute infections
one or two 5-cc. teaspoonfuls (300,000 units/5-cc
every four to six hours. This should be altered accor
ing to the therapeutic response. For prophylactic u
a dose of 300,000 units once or twice daily should b
sufficient. Dosages for small children should be calc
lated according to age and weight.

An article published by the American Heart Associa
tion[1] stressed that the control of streptococcal infe
tions is essential for the prevention of rheumatic feve
and rheumatic heart disease. This may be accomplishe
by early and adequate treatment of streptococcal in
fections in all individuals and the prevention c
streptococcal infections in patients who have ha
rheumatic fever.

It was recommended that effective blood levels c
penicillin be maintained for a period of at least te
days. For this reason, therapeutic doses o
COMPOCILLIN-V are recommended for at leas
ten days in the treatment of streptococcal infection

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There is evidence which suggests a widening prophy
lactic application of penicillin. Lapin[2] observed

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the higher blood levels of penicillin V.

45.5% reduction in the incidence of susceptible infections of the throat and ears among children who received prophylactic oral doses of penicillin.

Burke[3] reported, in addition, fewer rheumatic manifestations in children on a similar regimen. The findings of Maliner and Amsterdam[4] and others.[5,6] indicated that oral penicillin may be effective in preventing recrudescence of rheumatic fever.

In maintaining continuous prophylaxis in rheumatic fever patients, approximately 300,000 units one to two times daily is recommended. Patients with streptococcic infections who have had rheumatic fever or who show signs of rheumatic heart disease should receive a total of 800,000 to 1.2 million units per day in four divided doses for the first five days (smaller in children; larger amount in adults). During the second five days a total of 600,000 to 750,000 units per day should be given in three divided doses. Therapy should be continued for the entire 10 days even though the temperature may return to normal and the patient may feel better within one or two days.

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The incidence of adverse reactions during COMPOCILLIN-V therapy is low. Occasional cases of rash, urticaria are seen. Stomatitis or monilia infection of the gastrointestinal tract may occasionally develop during oral penicillin therapy. In these cases, ould be discont pri r measures should be institu Very rare ylaxis reaction may occur du g penicilli Immediate remedial meas should be a d in these cases. The drug uld not be us patient who has a previou story of penic ivity.

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Referen

1. Prevent matic Fever and Bact Endocarditis Through f Streptococcal Infec , Circulation, Am. He nc., 11:317, Feb., 19
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(Continued from Page 28)

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PEDIATRICIAN—31, Board Eligible, excellent training university centers, Priority IV, married, California license, seeks permanent association with group in desirable community. Available in a few months. Box 93,650, California Medicine.

(Continued in Back Advertising Section Page 84)

Sexual Deviation Results From Parents' Attitudes

(Continued from Page 50)

misconduct quite foreign to the child's conscious inclinations. . . . The child senses that he is expected to misbehave sexually. The parent's fantasy that their small child will probably get into sexual trouble during adolescence provides a compelling guide. Unconsciously, the parents gradually maneuver this child into adolescent sexual acting-out," they said.

There may also be actual parental seduction—"the pathological sensual tempting and sexual stimulation"—of the developing child. It may be "as subtle as a caress or as blatant as actual incest." The authors also noted the "disquieting but demonstrable fact" that all degrees of parental seduction of the child occur "more commonly than it is comfortable to contemplate," even in families with "every outward aspect of respectability, decency and conformity with convention."

The parents must be treated as well as the child, they said. Treatment of a child or young adolescent while he is still living with untreated parents yields disappointing results.

Treatment of the adult deviant is "indeed formidable" and should not be started if there is no motivation for treatment, the authors said. This is a frequent occurrence since many deviants lack a feeling of guilt. This lack results from the permissiveness of the parents during the early years of conscience formation.

For these persons, segregation from society may be necessary, since deviants with the ordinarily less physically harmful perversions may unpredictably break through into more destructive action. Such deviants may suddenly become dangerous physically, because of the hate and anger that is involved in their psychiatric problems.

Drs. Johnson and Robinson said the first step in preventing deviation is education of the parents by doctor and pediatrician.

Many well-intentioned parents unwittingly harm their children by their efforts to be "modern" and "hide nothing from the child." The conventional restraints of common modesty respected outside the home are ignored when the children are concerned.

"Dangerously little knowledge has led them to believe that . . . an open approach to sexuality provides an emotionally healthful climate. The resulting multiple forms of bodily exposure may result in unwitting and excessive over-stimulation of the child," they said.

By a few simple questions, the doctor can usually learn of an unhealthy home atmosphere and can counsel accordingly, either by simple and direct discussion with the parents or by referral for competent psychiatric treatment.

(Continued on Page 57)

Sexual Deviation Results From Parents' Attitudes

(Continued from Page 54)

Such a program holds genuine promise for prevention, "for sparing many children a miserable life outlook, for strengthening the fiber of the public character and for preserving society from an unhappy quota of hurt and violence," they concluded.

Dr. Robinson is associated with the Mayo Clinic at Rochester, and Dr. Johnson, formerly with the Mayo Clinic, is clinical professor of psychiatry at the University of Minnesota.

Identity Mark for "Fainters" Would Help First-Aiders

Some standard type of identification for people with a medical condition likely to cause loss of consciousness in public has been suggested by the editor of *Today's Health.*

"This seems to be one of those good ideas that have practically no opposition and just about the same amount of support," Dr. W. W. Bauer wrote in a recent issue of the American Medical Association's health magazine.

A coordinated and nationwide program by some organization is needed to sell the idea to the public and the medical profession, he said. Police and fire officers and public transportation employees who deal with the public in emergency situations would probably welcome such assistance since it would help them in the proper handling of unconscious people.

"To people who might become unconscious in public such a system of identification might well be a life saver," he said.

A number of devices have been suggested. Diabetics and epileptics are encouraged to carry cards furnished by the diabetes and epilepsy associations. A stamped wallet or an identification bracelet have been suggested.

Any of these methods may be helpful, but a consistent and coordinated method is needed, Dr. Bauer said. One suggested device is a small inconspicuous tattooed code mark that could be put on a concealed part of the body so it would be significant only to the physician and first-aider and would not embarrass the patient by exposure to the casual observer.

First-aiders would then have a clue as to whether they are dealing with cases of diabetes, epilepsy, cardiac attack, shock, fainting or other forms of unconsciousness.

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Formula: Each Wigraine tablet contains 1 mg. ergotamine tartrate, 100 mg. caffeine, 0.1 mg. of belladonna alkaloids (levorotatory)*, and 130 mg. acetophenetidin.

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Intermediary Home-Town Care

(Continued from Page 46)

intention of the VA to eliminate intermediary plans. It was agreed that the contracts would be continued, with a few changes, and that a uniform contract would be used, based on the system now in effect in Michigan.

The Committee on Federal Medical Services is, therefore, exploring the possibility of expanding intermediary Home-Town Care in those states interested in and desirous of establishing such a program. Those desiring information on intermediary plans or having comments or suggestions to make in regard to Home-Town Care are requested to write to the Committee, 535 N. Dearborn Street, Chicago 10, Illinois.

—*Federal Medical Service Newsletter*

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Volume 87 SEPTEMBER 1957 Number 3

Facts and Fallacies on Industrial Poisoning

CLINTON H. THIENES, *M.D., Ph.D.*, Pasadena

• Misdiagnosis of diseases as due to industrial poisoning leads to much misunderstanding, higher taxes and insurance rates and "compensation neuroses." It is important to know the concentration of the suspected poison and its specific effects in order to logically indict it as the cause of illness. Examples discussed to illustrate some of the pitfalls of diagnosis in industrial medicine are methylbromide, carbon monoxide, ozone, oxides of nitrogen and of sulfur, hydrogen sulfide, benzene analogs, boron and fluorides.

THE DIAGNOSIS of industrial poisoning as a cause of disease is frequently erroneously made and is in part responsible for much misunderstanding and for high insurance rates. Chemicals are becoming increasingly important as occupational hazards, new ones are being added each year and the literature is becoming so voluminous that it is difficult even for toxicologists to keep up with information on new compounds or with new information about old compounds. Fortunately, most of the new industrial chemicals are used in a limited number of industries and in industries where an industrial physician or an industrial hygienist is employed. Therefore, a general practitioner or internist or other specialist who is consulted by a worker, more often must consider one of the well known chemicals in differential diagnosis. I have, therefore, chosen for discussion some industrial poisons, whose names and general properties are familiar to most physicians, but which have been associated with mistaken diagnosis of industrial poisoning. Concentration-effect relations of some of them are shown in Table 1.

METHYL BROMIDE

Methyl bromide is used as a fumigant for fruit and nuts to kill eggs and larvae. When it was first used its toxicity was known to experts but apparently not to distributors or users. Hence a number of workers were seriously poisoned. It is a mild local irritant, similar to other halogenated hydrocarbons. It is a central nervous system depressant, causing symptoms similar to alcohol intoxication, but differing from alcohol in that but a few exposures may produce degenerative changes in the central nervous system. It may also cause degenerative

TABLE 1.—*Accepted and Effective Concentrations of Poisonous Gases (Parts per Million)*

Gas	Maximum Accepted Concentration	Minimum Symptoms (Acute)	Pronounced Symptoms (Acute)	Fatal
Ozone	0.1-0.5	1	2-3	10
Sulfur dioxide	5	5	10	400
Hydrogen cyanide	10	20	30	40-60
Nitrogen dioxide	5-10	30	100	150
Hydrogen sulfide	20	....	50	1000
Benzene	50	500	1500 300 (chronic)	
Carbon monoxide	100	400	1000	2000

From the Institute of Medical Research, Huntington Memorial Hospital, Pasadena.

Presented before a Joint Meeting of the Sections on General Practice and Industrial Medicine and Surgery at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

changes in the liver. A man was exposed to methyl bromide momentarily when a stream of the gas, or perhaps even of liquid methyl bromide escaped from a tank and impinged upon the back of his hand. There was no evident local irritation, aside from redness lasting a few hours. Some weeks later he noticed weakness of the hand and arm, with muscle atrophy, and the physician, following *post hoc ergo propter hoc* reasoning, stated that the muscular atrophy was secondary to peripheral nerve degeneration caused by the exposure of the hand to methyl bromide. There is no scientific evidence that injury of this type could have occurred from local contact. The only liquid which causes degenerative changes in nerves underlying an area of local cutaneous contact is carbon disulfide, and this involves only cutaneous sensory nerves. This misdiagnosis resulted in several hearings before a referee of the Industrial Accident Commission, with all the associated cost of time and money. A quick review by the physician of a single U. S. Public Health Bulletin on the subject[11] or of Johnstone's paper[4] would have avoided this mistake.

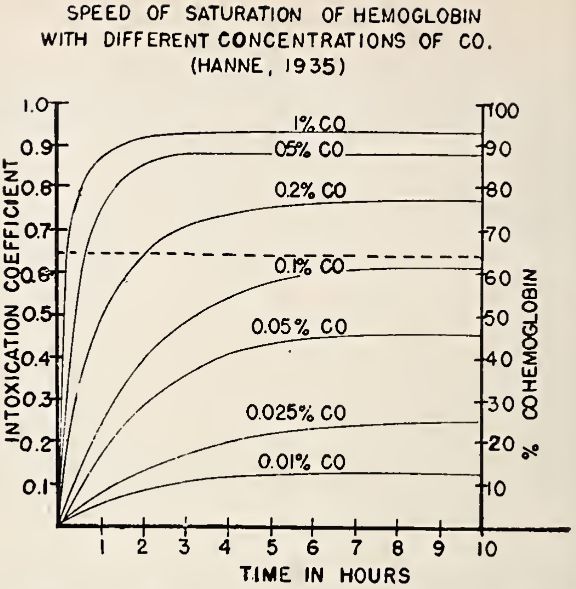

Chart 1.—Effect of exposure time and of concentration of inhaled carbon monoxide on degree of saturation of hemoglobin (From von Oettingen[12]).

CARBON MONOXIDE

The chief cause of death by poisoning in the United States is carbon monoxide. Few such cases are strictly occupational in origin; most are either suicidal or due to defective heating equipment. However, the hazard of carbon monoxide poisoning in industry is much more widespread than is generally known; it exists whenever carbonaceous matter is heated. It extends through many industries and in one survey it was shown that out of 150,000 workers, 21,840 were exposed to carbon monoxide.[12] A toxicologist's opinion is occasionally asked in a situation in which a person is found dead in a tightly closed room wherein a gas heater is found turned on but not burning. In most instances the body has been embalmed or cremated before the toxicologist is consulted. Embalming destroys carbonyl hemoglobin which would be the ordinary clue to carbon monoxide poisoning. Even if artificial gas, containing carbon monoxide, is involved, it is sometimes argued that the death might not have been due to the contained carbon monoxide, but rather to asphyxia due to exhaustion of the oxygen of the air. Assume a room 8 by 10 by 20 feet. This represents a volume of 1,600 cubic feet or 43,200 liters of air containing 8,640 liters of oxygen. At perfect combustion, 8,640 liters of oxygen will burn 4,320 liters of methane (natural gas), according to the reaction

$$CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O.$$

This reaction would require 18 hours for all the oxygen to be used up, with the methane flowing at 4 liters per minute. Such a condition is never met, for as oxygen concentration in the air is reduced, the efficiency of the reaction goes down and CO would be formed. When the oxygen falls sufficiently the fire goes out. If there were perfect ventilation of the heater, so that all the formed carbon monoxide would go up the flue, it is conceivable that a person in the room might die of simple hypoxia when the oxygen of the air falls below 10 per cent. Such a situation would be quite rare. In most cases of death due to gas heaters, the cause is carbon monoxide poisoning. If 10 per cent of the methane were to be changed to carbon monoxide it would require about three hours for the concentration in a room 8 by 10 by 20 feet to reach 2,000 parts per million (p.p.m.) which is the concentration causing death when respired for one hour (see Chart 1).

Although at high concentrations carbon monoxide is an enzyme poison, there is rarely, if ever, a case of poisoning that is not due solely to hypoxia of tissues resulting from combination of carbon monoxide with hemoglobin. The tendency of carbon monoxide to combine with hemoglobin is variously calculated to be from 200 to 300 times that of oxygen. Hence, at a concentration of one-tenth volume per cent (1,000 p.p.m.) carbon monoxide in air, the hemoglobin would be half saturated with carbon monoxide within about three hours (Chart 1). Death occurs at from 50 to 70 per cent saturation, depending on the health of the person exposed.

Treatment. Since carbon monoxide hemoglobin is formed by displacement of oxygen from oxyhemoglobin by a reversible reaction, the reaction may be reversed by removing the victim from the contaminated atmosphere and administering a high oxygen

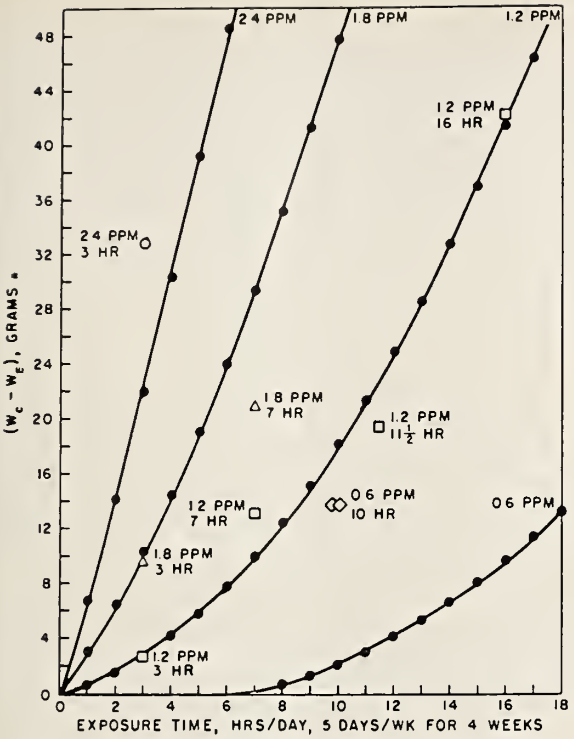

Chart 2.—Degree of depression of weight gain of young rats by constant ozone concentrations at different lengths of daily exposure time (From Mittler[6]. (PPM = parts per million.) *Difference between weight gain of control rats and weight gain of exposed rats.

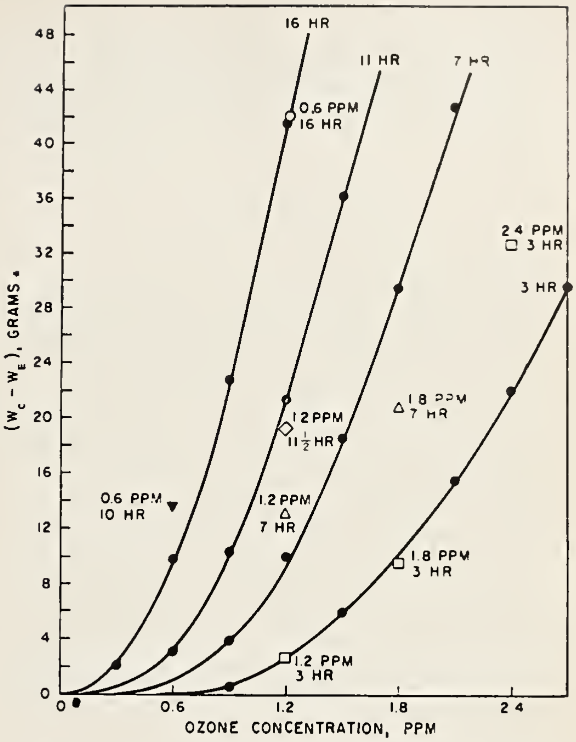

Chart 3.—Degree of depression of weight gain of young rats by different concentrations of ozone for different durations of daily exposure during four weeks (From Mittler[6]). (PPM = parts per million.) *Difference between weight gain of control rats and weight gain of exposed rats.

concentration. The reaction can be hastened by reducing the pH of the blood; hence 7 to 10 per cent of carbon dioxide in the respired mixture is of value.

Occasionally, and for a reason not known, some victims of severe carbon monoxide poisoning do not regain consciousness when the carbon monoxide of the blood falls to an insignificant concentration. Some of these patients can be aroused by administering procaine hydrochloride by intravenous drip.

OZONE

Ozone poisoning has become a subject of renewed interest because of the recent increase in concentration of it in city air, the high content of it in the atmosphere at high altitudes now being explored by man, and the generation of the gas during the use of electrical welding apparatus. As Haagen-Smit so well demonstrated[3] the nitrogen dioxide and hydrocarbons of automobile exhausts react to form ozone in the presence of sunlight. Between the hours of 10 a.m. and 3 p.m. the ozone concentration often reaches 0.2 to 0.3 parts per million (p.p.m.) for periods of from two to four hours. Several times a year 0.5 p.p.m. is reached in the Los Angeles atmosphere, and this is the signal for the "first alert" by the Air Pollution Control District; at least once, the content rose to 0.9 p.p.m. for a few minutes. Rarely does a concentration of 0.5 p.p.m. or higher last more than two hours. Present information indicates that except for exposures of longer than four hours, these concentrations are harmless; but concentrations above 1 p.p.m. inhaled for more than four hours are probably hazardous. Animal experiments by Stokinger[9] and by Mittler[6] and co-workers showed that whereas 1 p.p.m. for four hours causes no observable harm in animals at rest, it may cause death when animals are moderately exercised. Mittler also reported that there is no influence on growth of animals that are exposed to 1 p.p.m. daily for less than four hours a day. Human subjects exposed to 1 p.p.m. at rest showed no evidence of injury, but at 2 p.p.m. there was definite evidence of decreased pulmonary efficiency. At 8 p.p.m. for one hour, there was a loss of 45 per cent of lung capacity.[9]

The importance of ozone to aviation arises from the fact that at altitudes of 25,000 to 40,000 feet there is a stratum of ozone of such concentration that when the air is compressed to atmospheric pressure corresponding to 8,000 feet elevation, the ozone concentration is 1 to 2 p.p.m. and occasionally it has been shown to be as high as 4 p.p.m.[7]

In electric welding, ozone is produced in gas-shielded procedures[1]; the concentration is greater (up to 35 p.p.m.) two feet from the arc than at six inches.

OXIDES OF NITROGEN

The irritant oxides of nitrogen, especially nitrogen dioxide (NO_2) are liberated during gas-shielded electric arc welding and when organic nitrogenous materials are heated. Fires in chemical laboratories often result in breaking of bottles of nitric acid, with liberation of nitrogen dioxide from the heated liquid. Proof that "silo disease" is due to oxides of nitrogen is still lacking, but the evidence is strongly convincing. The fatal concentration is 150 to 200 p.p.m. if breathed for an hour; 30 p.p.m. will produce symptoms and 5 to 10 p.p.m. is considered safe for an eight hour working day. At a distance of six inches from the welding field the concentration may reach 30 p.p.m. but at two feet it is rarely 1 p.p.m. Los Angeles air contains at most 0.5 p.p.m. and the peak concentration on most days rarely is above 0.25 p.p.m.

The harmful effects of the oxides of nitrogen are similar to those of ozone, but except at fatal concentrations, symptoms and signs are delayed for several hours, whereas with ozone the effects may be noted almost at once. The chief effects are upon the pulmonary epithelium, with ensuing edema and even hemorrhage; this is followed by fibrotic changes which develop to the point of respiratory embarrassment in three to eight weeks.[5] Such fibrosis can probably be ameliorated or prevented by administration of meticorten.

OXIDES OF SULFUR

Oxides of sulfur (SO_2 and SO_3) were implicated in the recent London fog disasters, but concentrations have been so low as to cast doubt on their importance. Los Angeles air contains from 0.05 to 0.25 p.p.m. whereas the accepted safe limit for an eight-hour working day is 5 p.p.m. A point that must be considered in relation to the London fogs is the possibility of condensation of the irritant materials on the dust and in the water droplets, thus raising the concentration at points of contact with the respiratory mucosa.[2]

Asthmatic attacks in susceptible persons can be initiated at a concentration little above that which can be detected by smell (6 to 8 p.p.m.). Such asthmatic attacks can persist for several days after exposure is ended. There is no evidence that permanent or even prolonged injury to the respiratory tract occurs.

HYDROGEN SULFIDE

Another gas that irritates the eyes and respiratory tract is hydrogen sulfide, often associated with the petroleum industry. Lachrymation and coughing occur, and, with prolonged inhalation, pulmonary edema may be followed by pneumonia. Most cases of poisoning, however, are due to a systemic enzyme-inhibiting effect, with headache, vertigo, muscular weakness and early respiratory stimulation (carotid body reflex) followed by respiratory depression. Chronic exposure often leads to skin eruptions.[10]

BENZENE, TOLUENE, XYLENE

Toluene and xylene are extensively used in industry for cleaning oily metal surfaces and as paint thinners. Benzene (not to be confused with the aliphatic mixture, benzine) is now rarely used except in certain chemical industries. All three are central nervous system depressants; benzene is also a cardiac depressant and sensitizes the heart muscle to epinephrine as does chloroform or cyclopropane.[8] Hence, in acute exposure, death may be due to respiratory depression, or, if there is undue effort or excitement, to ventricular fibrillation.

Chronic exposure to benzene, as is well known, results in leukopenia, or pancytopenia. It is still controversial whether pure toluene or xylene cause such bone marrow injury. Formerly this was more an academic question than a practical one, for most commercial samples of either contained considerable benzene. Today, however, toluene and xylene contain little benzene and the amounts of benzene volatilized are too small to be a hazard. Furthermore, the occurrence of anemia or leukopenia following or during chronic exposure to toluene or xylene is rarely if ever seen today.

Toluene, except in excessively high concentrations, is not an irritant, and the cause of cough associated with its use must be sought elsewhere.

MINERAL POISONS

Finally, I wish to mention a case in which a diagnosis of borate and fluoride poisoning was made. The patient had anorexia, nausea, vomiting, tremor, palpitation and edema of the ankles. She had been exposed to dust which she had been led to believe contained both borate and fluoride. She reported this to her physician, emphasizing borate, and he diagnosed her condition as due to boron poisoning, since a specimen of urine was shown qualitatively to contain boron. I saw the patient months later, at a time when she had apparently recovered, and was inclined to diagnose the reported symptoms as due to fluoride, for they were similar to those seen in chronic fluoride poisoning. However, an analysis of a sample of the source of the dust, and an analysis of a specimen of urine which the patient said she had kept since her illness, failed to show the presence of fluoride. The dust had about 18 per cent of borate but no fluoride, and the urine contained only a few milligrams of boron. Since persons may excrete 300 mg. or more of borate daily without manifesting intoxication, the symptoms in this case were probably not due to boron or to anything associated with the patient's occupation.

CONCLUSIONS

Physicians should be slow to diagnose a condition as due to exposure to an industrial poison. This applies especially to conditions with symptoms extending over a period of several months. Since the average physician rarely sees a case of industrial poisoning, he should at least consult up-to-date textbooks or monographs before making the diagnosis. An incorrect diagnosis as to cause of illness may be not only expensive in time, insurance premium costs and taxes, but may contribute to ill-will and to "compensation neurosis." Where carelessness, ignorance or sheer neglect on the part of management result in an industrial accident, the unfortunate worker's rights should be vigorously supported by his physician.

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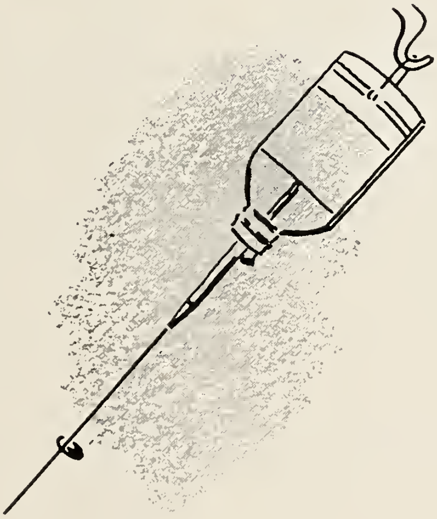

Genitourinary Symptoms in Industrial Medicine

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• It is important when considering the existence of a casual relationship or connection between injury or trauma and a disease process involving the genitourinary tract that an accurate and scientific diagnosis be made and that the authenticity and adequacy of the injury be established by objective evidence. Often it is impossible to adduce any evidence to support a supposition of relationship.

THE AVERAGE PERSON is inclined to associate abnormalities and diseases of the genitourinary tract with trauma, whether or not a compensable claim is in the offing.

Where there is doubt as to the existence of a casual relationship or connection between an injury and the development of symptoms, a chronological evaluation of the history of injury, symptoms, and time interval will materially aid in determining relationship.

Trauma may call attention to a preexisting pathological process and in no way be scientifically related.

When a pathological process antedating a traumatic incident suddenly causes symptoms, an opinion of relationship based solely upon history of injury is obviously inaccurate. An example is the fortuitous finding of a testicular tumor in the course of a routine physical examination or following trauma.

When a malignant disease and a history of injury coexist and the question of relationship arises, the inherent metastatic ability of neoplastic tissue and the inevitable, unpredictable complications developing in the course of the disease must be taken into consideration. The causes of cancer are not known and it is entirely misleading to list trauma as of etiologic significance.

Tuberculosis of the urinary tract is almost always a hematogenous infection. Ascending infection by way of the anterior urethra and from the genital organs has been generally discounted as a source of tuberculous infection of the kidney. The common primary foci are the lungs, bronchial lymph nodes or intestinal tract, although lesions there may not be demonstrable and may have never produced recognizable symptoms. Tuberculosis of the kidney, epididymis, prostate or bladder would not be considered as a primary foci in the body, or as related to trauma, simply because there is no demonstrable evidence of primary foci elsewhere.

Before trauma can be considered as having influenced a tuberculous infection in the genitourinary tract, a direct injury must have occurred to the focus of infection, of such magnitude as to be readily demonstrable.

Urinary lithiasis produces one of the major problems in industrial urological medicine by virtue of the frequent incidence, the many factors responsible for stone formation, and the difficulty in determining the time interval between the formation of a calculus and the development of clinical symptoms.

Primary calculi in the ureter are rare. Most calculi originate in the kidney and about a fourth of them are passed spontaneously, without instrumentation, from muscular contraction of the pelvis and ureter, which causes pain in the lumbar region of varying degrees of severity.

In most instances it is impossible to identify the exact cause of any particular calculus. It is certain that stasis and stagnation of urine, augmented by infection, bring about precipitation of urinary salts, which is the initial stage in the formation of a calculus.

There is no question as to the casual connection or relationship to development of calculi when the patient remains recumbent and immobilized for prolonged periods for any cause, but especially fractures. Early, complete study of the urinary tract of a patient who must be recumbent, including excretory intravenous urograms and examinations and cultures of the urine (with sensitivity tests of organisms) will save many a kidney.

In the absence of recumbency and immobilization, and in the absence of objective evidence of severe injury, producing stasis, stagnation, infection, and blood clots or foreign bodies within the urinary tract, it is erroneous to assume that trauma alone is a causative factor in urolithiasis, and it is erroneous to assume that trauma was the approximate aggravating cause of the passage of a small calculus from the kidney into the ureter.

Injuries of the kidney are uncommon. Usually when they do occur they are a result of direct violence. A normally situated kidney is protected by virtue of its mobility and its anatomical position. In-

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Presented before a Joint Meeting of the Sections on General Practice and Industrial Medicine and Surgery at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

direct injury or rupture of the kidney occurs principally where there exists a preexistent unsuspected kidney lesion, such as polycystic disease, calculus, tuberculosis or neoplasm. The symptoms of kidney injury are shock (which does not necessarily parallel the extent of the injury), pain in the flank, gross or microscopic hematuria and reflex anuria, even in unilateral renal injury. A cystoscopic examination with retrograde pyelograms may be required for an absolute diagnosis; even so, it is advisable to initiate excretory intravenous pyelography early when an injury of the kidney is suspected.

Nephroptosis, or floating kidney, is in some instances alleged to be due to injuries or trauma of various types and severity. This asymptomatic condition is frequently associated with generalized visceroptosis, without the history of injury being elicited. Abnormal mobility of the kidney occurs in more women than men, and is often associated with general visceroptosis. The normal range of mobility of the kidney in women is 1.5 to 5 cm.; in men, about half that. The right kidney is affected more often than the left, and both kidneys more often than the left kidney alone.

The symptoms attributed to a floating kidney are many. The most constant is pain, of an aching or colicky type. Nephroptosis associated with general visceroptosis is often present in neurotic persons—with a multiplicity of symptoms, due to the neurosis. A movable kidney does not differ in any way from the normal kidney until complications arise. Excursion of the normal kidney is limited chiefly by the blood vessels of the renal pedicle and the renal fascia, which attaches the kidney to the diaphragm, spine, large vessels, to other abdominal viscera and the perirenal fat.

It is illogical to assume that trauma is a causative factor in elongation of the renal vessels and the looseness of fascial attachments, thus permitting a kidney to migrate and rotate below its normal limits, and be classified clinically and intrinsically as a floating kidney.

Severe traumatic injuries of the bladder, urethra, seminal vesicles and prostate are commonly associated with fractures of the pelvis, especially of the pubic and ischial rami and the ischial tuberosities. Simple contusion of a normal prostate occurs only when associated with severe injuries to adjacent structures. Disease of the prostate is on occasions alleged to be due to or aggravated by trauma, without injury to adjacent structures. The frequency of history of associated trauma among patients with prostatitis and benign and malignant prostatic changes does not seem to be high enough to be anything but incidental.

Direct traumatic epididymo-orchitis is not frequently observed, and the clinical characteristics differ widely from the history and symptoms of the so-called indirect epididymo-orchitis, alleged to be due to trauma or strains, which is frequently seen and which closely resembles, in symptomatology and clinical course, acute nonspecific, pyogenic epididymitis. I am entirely convinced that the indirect trauma of muscular strain or minor injuries does not cause epididymitis. Such incidents merely draw attention to an already existing inflammatory process.

Vaginalitis is bacterial inflammation of the tunica vaginalis testis. Such an inflammatory process usually produces clinically a hydrocele, a circumscribed collection of fluid in the tunica vaginalis of the testicle, or along the spermatic cord, and is frequently associated with epididymitis, and rarely with orchitis.

Idiopathic hydrocele is a common clinical diagnosis and frequently the lesion is attributed to trauma. Careful study will invariably disclose such a lesion to be due to infection spreading from an associated inflammatory process of the epididymis, spermatic cord, prostate and seminal vesicle, and not related to trauma. Hydroceles transmit light.

Hematocele is an effusion of blood into the tunica vaginalis, associated with known trauma, the rapid development of a scrotal tumor, and ecchymosis of the scrotal skin. Hematoceles do not transmit light.

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Industrial Injuries of Farm Workers

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• Most industrial employees receive physical examinations to evaluate their physical fitness in relation to their work. The farm worker is neglected in this matter, in that he is hired for almost any type of work without physical evaluation. As a result, his accident rate is high. His efficiency at his work is low. His time loss from work because of sickness and accident is high, and the employer pays a very high rate of insurance for the patient's care and his own legal protection.

Physical fitness cards should be carried by all farm laborers so that they would be put in properly graded jobs.

Agricultural work involves many different kinds of activity, from driving large implements such as harvesters and land levelers to removing the pits from peaches and apricots for drying. It is difficult to find adequate numbers of workers for this seasonal work, more difficult yet to find workers who are physically fit to do it. Hence, persons with poor health, physical handicaps and unstable personalities are often hired—the employer well knowing that the employee is a poor risk for the work involved. Much of the work in agriculture has to be done on large sections of land in a short time. Soil must be worked when it is ready, planting done when soil and season are right, and many crops have to be harvested and shipped within a span of a few days. In such exigencies, almost any worker obtainable must be hired. This presents a problem peculiar to work of this type as compared with the factory, where the employment is steady, there is little turn-over in personnel and each worker is trained to do his particular job efficiently and safely.

By and large a farm worker is hired for almost any kind of work without physical evaluation. His accident rate is high, his efficiency is low, and he loses a good deal of time from work because of sickness and accident. Therefore, the employer has a very high rate to pay for insurance for the worker's care and his own legal protection in case of injury.

Many accidents are attributable to a preexisting disability of the worker. Farm laborers are usually poor, not only in money but in spirit. They work without proper rest and nourishment. Owing to poor living conditions and lack of permanent home, there is insecurity and unrest among the members of the family. Many are ignorant about health principles, and all too many are habitual users of alcoholic beverages, which keeps them poor, lacking in coordination on the job, and undependable.

Some labor contractors provide camps for the workers with facilities for bathing and laundering. Other workers have no provision at all for personal cleanliness. I have seen husband, wife and one or two children sleeping night after night in an automobile and eating from a grocery bag. Some spread a canvas under the trees with only an old mattress for their bedding. Old sheds, pump-houses and barns are likely to be dwelling places for migrant farm workers. Many of the farm laborers are recruited from the slums and "skid rows" of the towns and villages of the agricultural districts. A sizable proportion of the men recruited for farm work are suffering from the effects of the previous evening's drinking and only go to work for an hour or two to get enough money to buy another bottle of wine.

In California the cost of farm labor insurance to protect the employer and care for the employee is high. For agricultural field crop workers it is $4.26 per hundred dollars of wages; for dairy farm workers, $3.21; for poultry workers, $2.82. By contrast, the cost is 9 cents per hundred dollars of salary for office workers. The only work classification with a higher rate is heavy construction work, with a premium of $4.75 per hundred dollars of wage.

Employers in businesses such as food processing, department stores and factories require physical examinations of their employees before employment. This is to determine the physical fitness of persons hired and to make note of preexisting abnormalities. If it is necessary and advisable to have physical examinations for employees where the risk is so small, one would consider that it would be advisable and necessary to have a preemployment physical evaluation of workers where the risk is greater.

It is not uncommon for an agricultural worker who is even slightly injured on the job to complain bitterly and demand compensation for long periods. Often a preexisting condition is blamed on a work-connected injury. For example, the case of a 54-year-old woman, large and moderately obese, who, while picking peaches, fell from a ladder and landed with a picking-bucket under her side. She complained of abdominal pain and on examination was found to

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Presented before a Joint Meeting of the Sections on General Practice and Industrial Medicine and Surgery at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

have a large mass in the pelvis. The examining physician said the pain was owing to a fibroid uterus, not caused by the fall. The patient immediately obtained a lawyer and consulted other physicians who also ascribed the pelvic mass to a fibroid uterus, but said it was possible that the fall might have caused hemorrhage to occur within the fibroid mass. After a hearing before the Industrial Accident Commission, it was decided that the insurance carrier should finance the removal of the tumor to determine if hemorrhage had occurred in it. On operation only a large fibroid uterus was found. It was removed at the expense of the insurance company and further compensation was denied.

Preexisting conditions and disabilities often are contributory causes of accidental injury, as in the case of a 32-year-old wife of a farm worker, who fell from a ladder while picking peaches, landing in a jack-knife position and fracturing the second lumbar vertebra. The patient had had a previous injury to the right knee and the patella had been removed. The joint was very unstable. It was the opinion of the examining physician that the condition of the knee was such that she could not keep her balance on a ladder. Inasmuch as she was hired and working, the insurance company bore the expense of her disability and care.

Many times a malingering worker will claim injury unjustly, usually near the close of the season, and the "disability" will usually continue until work is again available the following season. Evaluation of the patient's subjective complaints in these cases is very important. To do so puts a considerable burden on the attending physician and the arbitration board and insurance carrier. To make record of associated and contributing conditions present in persons injured on the job, and also to have basis for more accurate evaluation of malingering, it would be advisable that physical examinations be carried out on all workers before they are permitted to do any kind of agricultural work. In determining the physical fitness of a worker, complete physical examination should be carried out—not merely the extremities and the easily accessible parts of the body. Careful history taking and examination of the back, including x-ray films, is advisable. Female workers should have preemployment examination for pelvic disorder.

In 1955 there was a total of 15,810 farm injuries reported in California. Injuries to the back made up 21.6 per cent of the total. Of the 3,226 back injuries 2,593 were strains, sprains and dislocations, including injury to intervertebral discs; 67 were fractures; the rest were bruises and contusions.

Most workers with strains and sprains gave a history of having had previous trouble and many are rather well versed in the vocabulary to use in stating their complaints. Patients with real injuries are relatively easy to care for. It is the worker with subjective symptoms who arrives at a physician's office supported by two or three fellow workers and there complains bitterly of pain in the back, who is difficult to cope with. In order to avoid pitfalls, such a patient must be examined in great detail. If no injury is noted and he is told he can go back to work in two or three days, he may go to another physician, obtain a lawyer, and be scheduled for hearing before the Industrial Accident Commission.

Dr. J. L. Barritt of the California Industrial Accident Commission lists the following definitions of degrees of subjective symptoms.

1. *Minimal.* Annoying to the patient but no handicap.

2. *Slight.* Tolerated, but no handicap to work.

3. *Moderate.* Tolerated, but pronounced handicap to the patient's work.

4. *Severe.* Any work at all will precipitate pain.

One of the most frequent of severe injuries in orchard work is injury of the back, particularly a fracture or a sprain due to a fall from one of the three-legged ladders used for picking tree crops. The ladder itself is usually 12 to 14 feet in height and weighs 40 to 60 pounds. Skill has to be used in placing this ladder, as it will easily tip and lean if one leg should sink in a soft place or a gopher hole. Skill in balancing on the ladder must be acquired also. Many pickers are hired who have never handled a ladder or picked fruit before. Usually injuries resulting from a fall in which the patient lands on his buttocks or across his picking pail are compression fractures of the dorsal or lumbar vertebrae. The patient must then be treated in hospital for reduction of the fracture by hyperextension, and application of a body cast. Later a brace such as the Jewett or Taylor brace may be used. Lashier[1] expressed the opinion that a disability of one year should be accepted as probable in all crushing fractures of the vertebral body. Some patients are inclined to have symptoms for a period of years. McBride said that in cases of cervical fractures the patient may be expected to resume work in 30 to 40 weeks and that for lumbar and dorsal fractures at least 42 weeks should be allowed and the patient should be returned to light work as soon as possible.

Of 200 patients with back injuries who were observed by the author after one year, 83 had been disabled for one month, 25 for two months, 11 for three months, three for one year. In four cases no decision had yet been made as to status, and three failed to return for check-up.

Considering the great advance that society is making in care of the needy, one cannot but look upon the migrant farm worker as a neglected member.

His work is very important to the agriculture of this state, and steps should be made for the improvement of his lot which will also improve the efficiency of the worker on our farms and orchards. Preexisting conditions should be corrected as far as possible. If the patient is unable to afford the necessary treatment—which is many times the case—then he should be referred to the county hospital for care. This sometimes poses a special problem, for a migrant worker may be in Stanislaus County when he needs care, yet be a bona fide resident of Tulare County. Certainly patients who live in several counties during the year should be eligible for care where they are living.

Physical fitness cards should be carried by all farm laborers to keep them in a kind of work suited to their physical condition. This would tend to prevent injury, increase efficiency and lower the cost of the care and protection of workers. Physical evaluation should aim at the following points:

1. A measure of physical fitness of the individual to perform his duties without hazard to himself and others.
2. Assist workers in improving and maintaining their health.
3. Detect and correct the effects of poor living habits.
4. Establish a record as to physical condition and preexisting defects, habits and deformities.
5. Establish a record of accident proneness and offer steps toward solution.

1937 Sequoia Street, Ceres.

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Certainly, let's talk about fees...

In this day and age I think we all are faced with many similar financial problems. Though our incomes may be derived from different sources, our expenditures, for the most part, consist of food, clothing, shelter and other expenses including medical care.

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Hearing Conservation

Industrial Aspects in California

ARAM GLORIG, *M.D.*, Los Angeles

• Impaired hearing is a serious problem. The number of persons with a significant hearing loss has been estimated to be approximately 10 per cent of the population.

Hearing loss owing to exposure to noise is becoming an increasingly important disease. Although it has been recognized for more than a century, little if anything was done to prevent it until a few years ago.

The initiation of hearing conservation for employees has been undertaken by many of the large companies, particularly in California.

Hearing conservation includes preemployment and follow-up hearing tests, control of noise at the source and personal protection (ear plugs, ear muffs).

Noise-induced hearing loss is directly related to noise-exposure. Noise must be measured in terms of volume, wave length and length of exposure. Exposure must be analyzed for daily distribution and total time.

Although the noise-exposure problem is a serious one, cooperation of employee, employer and the legal and medical professions to initiate preventive programs can reduce it to a minimum.

OF THE MANY ILLS that have beset mankind, few have been as seriously misunderstood as impaired hearing. Although loss of hearing has been known since the time of early recorded history, present knowledge of the disease before the sixteenth century is very incomplete; much of what is known today is indirect or has been inferred.

The extent of hearing loss in our society may be estimated from the results of hearing surveys of school children and of the general population. Five to 10 per cent of the school children have sufficient hearing loss to be referred to an otologist; the Veterans Administration compensates 90,000 veterans for impaired hearing; nearly every state has at least one school for the deaf, with a total enrollment of over 100,000 students. A conservative estimate of the number of persons who require hearing amplification for effective communication is about 10 per cent of the total population of the United States, or some 17 million persons. Most persons are affected to some degree by hearing loss, in themselves or in a friend or relative.

The particular need for conservation of hearing in environments of noise which might be considered contributory to hearing loss has been emphasized recently by decisions handed down by the compensation courts in several states. Such bodies in Wisconsin and New York, for example, have declared that "occupational hearing loss" is compensable. In Wisconsin the law that governs payment of compensation for occupational hearing loss has been revised and extended. Such trends have aroused a new and vigorous interest in the problem of the relations of hearing loss to exposure to noise. It has long been known that extended exposure to many industrial noises will cause impairment of hearing. There are reports of noise-induced hearing loss dating as far back as 1804, when Fosbrooke of England reported that blacksmiths as a group had impaired hearing. The modern blacksmith, the drop forge operator, is still a subject of concern in studies of noise-induced hearing loss.

THE LEGAL HISTORY

Although the medical history of noise-induced hearing loss is fairly clear and there is no doubt in the minds of anyone that hearing loss will result from noise-exposure, legally the problem is much more complex and not so clear. Terms such as *disability* and *occupational disease* when used in the legal sense have a meaning entirely different from the medical meaning. For example. the term *disability* as used in the medical sense indicates a dysfunction of some particular organ or impairment of a physiological process of the body. In the legal sense, disability may not mean the same. Within a legal framework loss of function or injury to the human body becomes a disability only if defined as such by law. This is true of the term *occupational disease* also. We may be correct in saying that a loss of function is occupationally induced, but legally that loss of function need not be an occupational disease. What might be classed as an occupational disease or a disability in one state will not necessarily be so classed in another.

It is unquestioned that hearing loss reduces a man's capacity to live a normal life, and in some

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Presented before the Section on Industrial Medicine and Surgery at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

specific instances may reduce his earning capacity; but if the legal criteria used in many states for establishing disability are applied to noise-induced hearing loss, it is not a disability. There is no date of injury nor, in most cases, is there loss of wages. On the other hand, there is no question that hearing loss can be occupationally induced.

A discussion of the legal aspects of disability would be incomplete without mention of the "compensation for wage loss" concept—the original intent of compensation laws. From the inception of workmen's compensation laws in the decade between 1910 and 1920 until the case in New York state in 1948 there had been few departures from the wage loss concept. However, when the New York claimant received compensation with no date of injury and certainly no wage loss, it was evident that the wage loss concept was in for re-examination. Further, when the state of Wisconsin decided in favor of a claimant under similar conditions, serious doubt was cast on the use of loss of wages as a basis for establishing compensation. Heretofore, this concept had acted as a brake which could be depended upon to limit compensation within reasonable bounds. With these interpretations, however, it appeared that industry was in danger of serious financial embarrassment were the wage loss concept completely abandoned.

It is not our right as physicians to discuss disability as defined on a legal basis, in contrast to social handicap which depends upon a man's relation to his total life. Much of what we might say could be biased. As physicians it is our duty to preserve man's various functions and restore them whenever possible. As physicians we cannot and should not relate loss of function to dollars and cents. We must evaluate loss of function by the effect on the patient. On the other hand, we are members of the community and are in this capacity concerned also with loss of function as it affects the community. What the community can afford to pay for loss of bodily function and whether payment shall be based upon man's relation to his industrial life or to his total life must be regulated by community opinion. As members of the community we might argue that compensation benefits must be based upon the opinions of the whole community, not only the industrial community. After all, the employee is a member of the industrial community for only a small part of his lifetime; but he remains a part of the total community for his entire life. As physicians, we must urge that the industrial community do everything possible to preserve human functions. We should be impartial in our decisions regarding all members of the industrial community, which includes employee and employer alike. Our concern is conservation, not compensation. Much of what we do will influence the results of the application of compensation laws to employer and employee; but whether the laws are based on wage loss or social loss must be decided upon primarily by the total community.

There are two principal variables in the industrial noise problem: Noise-exposure and noise-induced hearing loss. Noise-exposure has two principal dimensions: Sound pressure level and time. The sound pressure is measured in decibels by a sound level meter. The distribution of the sound pressure as a function of frequency or pitch is measured at octave intervals in decibels with an octave band analyzer, which is a series of filters arranged to eliminate all frequencies except those in the octave band that is being measured. Exposure time should be thought of in terms of daily distribution and total lifetime duration. Both are important. Present evidence shows that interrupted exposure during a work day is not as hazardous as continuous exposure, even though the former may have considerably higher sound pressure levels.

For purposes of conservation of hearing in industry, hearing is measured by pure tones in decibels. The pure tone tests are given with the use of an audiometer. This instrument is designed to measure the auditory threshold at discrete frequencies throughout the central section of the audible spectrum, which extends from 20 to 20,000 cycles per second. Most audiometers are calibrated to measure hearing loss at 250, 500, 1,000, 2,000, 3,000, 4,000, 6,000, and 8,000 cycles per second in five-decibel steps. The decibel is a unit used to measure sound pressure level. It is a logarithmic expression of a power ratio. It is not a linear unit, but indicates increases from a reference point by a factor of 10. Sound pressure levels are usually related to 0.0002 dynes per square centimeter—the least sound pressure the ear will respond to at 1,000 cycles per second.

The effects of noise-exposure are usually divided into nonauditory and auditory effects.

The nonauditory effects may be divided into those that modify communication by speech and those that cause changes in behavior. That excessive noise interferes with speech is readily apparent; but the behavioral effects are not so obvious. For example, noise is said to cause excessive fatigue, neurosis, sterility, "nervousness" and even insanity. In a review of the literature it is notable that almost anything can be ascribed to exposure to noise; but no one has presented any controlled data to substantiate any of the claims. There are so many other factors that are coexistent with noise that no valid conclusions can be drawn. It is quite clear, though, that in the majority of industrial situations exposure to noise is not a factor in behavioral upsets.

The auditory effects of exposure to noise are well known. Noise-exposure does have effect on the inner ear that brings about hearing loss of a type not amenable to treatment. The amount of exposure it takes to cause how much hearing loss in what person is not so easy to establish, however.

There are many factors that make the answer to questions such as these very difficult to obtain.

Amount of Noise-Exposure

The combination of noise and exposure expresses an extremely important concept which physicians would do well to remember. Rarely does noise-induced hearing loss come about without long exposure. In general, the length of the exposure required to bring about impairment of hearing is inversely proportionate to the amount of energy in the noise. To complicate this simple concept, however, noises differ from each other and so do people. For example, the noise energy may be located in one or two bands of frequencies or may be distributed throughout eight or more bands of frequencies. To determine this, noise must be measured in two dimensions—total energy and frequency characteristics. Further, the exposure may be distributed differently—time during a work day or total during a work life. Noise-induced hearing loss is a slowly progressive insidious process. Significant losses do not commonly occur as a result of a single or short term exposure unless the exposure is explosive in nature.

Susceptibility

Most persons are susceptible to noise-induced hearing loss. Some few persons can take a lot of exposure to excessive noise without having significant hearing loss; on the other hand, a few will have considerably more loss than the average. My observation is that the number at either extreme is quite small.

Definition of "Hearing Loss"

Strictly speaking, deviation toward an increase in the auditory threshold can be said to be a hearing loss. However, physicians are concerned principally with preventing significant hearing loss—loss that causes a handicap. The amount of hearing loss it takes to cause a handicap is significantly more than a mere increase in threshold above the zero on the audiometer. This zero, or average normal hearing reference, is a statistical average and, therefore, not a specific point on a scale. Any threshold that lies within 15 decibels of zero, above or below, can be said to be within normal limits. Loss of acuity greater than that represented by 15 decibels above zero can be considered a handicap. Now to define *handicap*.

The most important function of the ear in our society is to hear speech for communication purposes. Hence, it would be desirable to know how much noise-exposure is necessary to produce a hearing loss sufficiently great to cause a handicap for communication by speech in the average person.

This question cannot be answered as yet; it is possible only to suggest tentative limits which will indicate when a noise-exposure may be potentially hazardous and necessitate hearing conservation measures. On this basis, I suggest that if a person is to be exposed continuously for several hours a day for many years to noise of 85 decibels or more in the 300 to 600 and 600 to 1,200 frequency bands, hearing conservation measures are in order.

Hearing conservation programs should include: (1) A noise-exposure analysis, (2) control of noise-exposure, (3) the measurement of hearing.

A noise-exposure analysis entails measuring the volume of noise, determining what portion of the volume is borne on the various wave lengths (frequencies), the distribution by time during the day (is it continuous or intermittent?), and the total duration during a work-life.

Control of noise-exposure may be accomplished by reducing the noise at the source and/or protecting the exposed person. Reducing the amount of noise at the source is an engineering job and, if feasible, is obviously the best solution. Usually, however, the most practical method of noise-exposure control is through personal protection. This may be accomplished by isolating the person in specially constructed booths, where possible, or, most practical of all, by promoting the use of ear-plugs or ear-muffs. As with every other personal protective device, it is often difficult to get the worker to use protective equipment at first, but experience has shown that with a little effort and patience most employees will eventually wear ear protection faithfully. Ear plugs or muffs rarely cause any difficulty and with reasonable care, may be worn continuously under any condition.

The measurement of hearing is undoubtedly the most important part of a hearing conservation program. Without audiometric examination it is impossible to evaluate the efficacy of the noise-exposure control methods. Pre-employment hearing tests should be given to every employee regardless of the nature of his prospective employment. Pre-employment audiograms serve to establish the status of the employee's hearing for use in case of medico-legal proceedings and act as a baseline for comparison with subsequent follow-up tests. Follow-up tests should be given periodically—at 90 days after starting work in a noisy area and then routinely once a year. These follow-up tests will monitor the efficacy of a hearing conservation program and indicate whether the employee should be checked oftener as regards ear protection or in some cases indicate the need of a transfer into less noisy surroundings.

Pre-placement audiograms require air conduction threshold tests at 500, 1,000, 2,000, 3,000, 4,000, and 6,000 cycles per second. They may be given with a simple standard screening audiometer. Diagnostic audiograms should not be a routine part of an industrial program. These should be made only on request and usually by or under the supervision of an otologist. Follow-up tests are given to detect changes from the original. or baseline audiogram. They may be done by simply screening with 20 decibels at 4,000 cycles per second. This single frequency screening serves for rapidly testing many employees in a short time. Research has shown that most noise-induced hearing loss occurs at 4,000 cycles per second. Surveys have proved that 99 per cent of employees will show more hearing loss at 4,000 cycles per second than at any other frequency. The single frequency screening test has many advantages. (1) The equipment costs considerably less than other types; (2) screening at 4,000 cycles per second at 20 decibels may be done in ordinary quiet rooms. Sound-treated rooms such as those required for threshold tests are not necessary; (3) the test can be given in a few seconds; (4) there is no need for trained personnel.

Many companies even in as enlightened a state as California are hesitant about initiating a hearing conservation program because of the fear of increasing the number of claims for hearing loss. This can be called the "ostrich syndrome." There are numerous large companies in California that have had hearing conservation programs in force for ten to fifteen years. All of them say there has been no increase in claims due to the program. On the contrary, they feel certain the programs have saved a great deal of money.

California has had an occupational disease law for over ten years. It is a very liberal law, providing not only for compensation on an occupational disease basis but also for any subsequent medical care which might result from the occupational disease. For example, if a claim is recognized, the claimant may obtain a hearing aid with all the necessary services, such as batteries and repairs. Frequently, these ancillary costs are far greater than the actual award.

The seriousness of the hearing loss problem cannot be over-emphasized. A flood of claims could very well wreck a company financially. The total cost could be many millions of dollars. In my opinion, however, with a reasonable attitude toward compensation and good hearing conservation programs the potential risk can be reduced to a minimum. The final solution rests with the cooperation of all concerned—the employee, the employer, the compensation commissions, legislators and the legal and medical professions.

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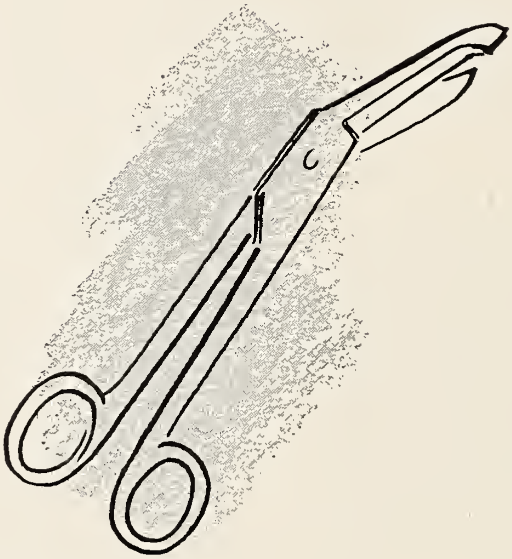

Peripheral Arteriosclerosis

Arterial Grafting Procedures—Indications and Results

EDWIN J. WYLIE, *M.D.,* **JOSEPH S. McGUINNESS,** *M.D.,*
and FREDERICK M. BINKLEY, *M.D.,* **San Francisco**

Part II

Arteriosclerotic Arterial Occlusion

• Arteriosclerotic thrombotic lesions involving the arteries to the lower extremities may be conveniently grouped into three categories. Lesions of the aorta-common-iliac level (Category I) appear to be most satisfactorily treated by thromboendarterectomy. Lesions in the femoral artery (Category II) are particularly amenable to by-pass arterial grafts. Advanced lesions (Category III) involving both areas may be treated by one or the other method or a combination of both. Aortography is a necessary prerequisite in the selection of patients for operation and the determination of the method of surgical approach.

The increasing awareness of the segmental nature of arteriosclerotic arterial occlusion has stimulated surgical investigation of the clinical feasibility of restoring normal flow of blood to areas rendered ischemic by arteriosclerotic thrombosis. These areas include (in addition to the extremities) the brain, the myocardium, the kidneys, and the intestinal tract. Increasing success has been reported with the use of the two methods—thromboendarterectomy or arterial resection and graft—that are currently employed to reconstitute a normally functioning vessel at the site of an arteriosclerotic arterial occlusion.

Thromboendarterectomy, first reported by Dos Santos in 1947.[1] is an operation designed to resect the diseased and thickened intima along with the associated thrombus in an occluded arterial segment, using the media and adventitia of the existing artery to create a new vessel. Grafting procedures, on the contrary, substitute an entirely new blood conduit either by interpolation of the graft after resection of the thrombosed segment or by shunting blood around the occluded segment as a "by-pass" graft. Autogenous, homogenous, and even heterologous arterial and vein grafts have been used for this purpose, as well as a variety of synthetic materials.

The purpose of this report is to describe the experiences in diagnosis and operative treatment of 172 patients with segmental arteriosclerotic occlusions upon whom direct arterial surgical operations were done to revascularize previously ischemic areas. This series included 133 thromboendarterectomies and 39 by-pass arterial grafts performed in the period subsequent to January 1951. All lesions were at one or more levels of the arterial tree, from the upper abdominal aorta to the popliteal arteries. Postoperative observation has covered periods varying from three months to six years.

Although the final determination of operability and the choice of operation have depended upon arteriography or surgical exploration, certain generalizations concerning clinical-pathologic categories and their relation to operability can be made. The majority of arteriosclerotic lesions which caused peripheral ischemia were in the aorta or the iliac or femoral arteries. Significant arteriosclerotic obstruction in smaller arteries distal to the popliteal arteries has rarely been noted except in very old persons. Thrombosis of the subclavian and brachial arteries, although not rare, has not often caused significant ischemia in the upper extremities, except for an occasional case of complete or incomplete carotid or innominate artery thrombosis causing transient attacks of hemiplegia. Most lesions that cause cerebrovascular thrombosis are in the arteries of the brain and, because of the small arterial caliber, are unavailable for direct arterial operations.

The arterial lesions impairing arterial supply to the lower extremities can best be grouped into three broad categories, distinct with respect to symptomatology, operability, and prognosis.

The first, and most favorable category on all counts, is occlusion or stenosis of the terminal aorta and/or the common iliac arteries. Aorta-iliac thrombosis generally has appeared in younger patients; in the majority of cases in our experience the first ischemic symptoms developed before the age of 50. The early symptom of a lesion at this level is gluteal, hip or thigh claudication (often described as fatigability rather than pain). The arterial tree distal to the aorta-iliac area is free of gross evidence of

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Presented before the Section on General Surgery at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

Part I of this two-part article appeared in the August, 1957, issue of California Medicine.

arteriosclerosis in most patients with these high level lesions. Hence, restoration of flow of blood by either form of direct arterial operation is followed in most cases by relief of all symptoms and restoration of pedal pulses. Because of our own unusually favorable experiences with thromboendarterectomy for aorta-iliac arterial occlusion (either complete or partial) in a series of 102 operations, we believe this procedure to be superior to grafting operations for segmental lesions at this level (Table 1). Immediate thrombosis of the operative segment occurred in five patients, the arterial flow becoming the same as before operation. There were five operative deaths, four of which occurred in patients in the first half

TABLE 1.—*Incidence of Local Thrombosis After Reconstructive Arterial Operations*

Diagnosis and Operation	No. of Patients	Postoperative Thrombosis Early	Late
I. Simple aorta-iliac occlusion:			
Thromboendarterectomy	102	5	0
II. Superficial femoral occlusion:			
Thromboendarterectomy	17	4	4
By-pass graft (common femoral to popliteal)	18	1	3
III. Advanced aorta-iliac occlusion (with external iliac disease):			
Thromboendarterectomy (aorta, common and external iliac arteries)	14	3	1
By-pass graft (aorta to common femoral—unilateral or bilateral)	21	6	1
Total	172	19	9

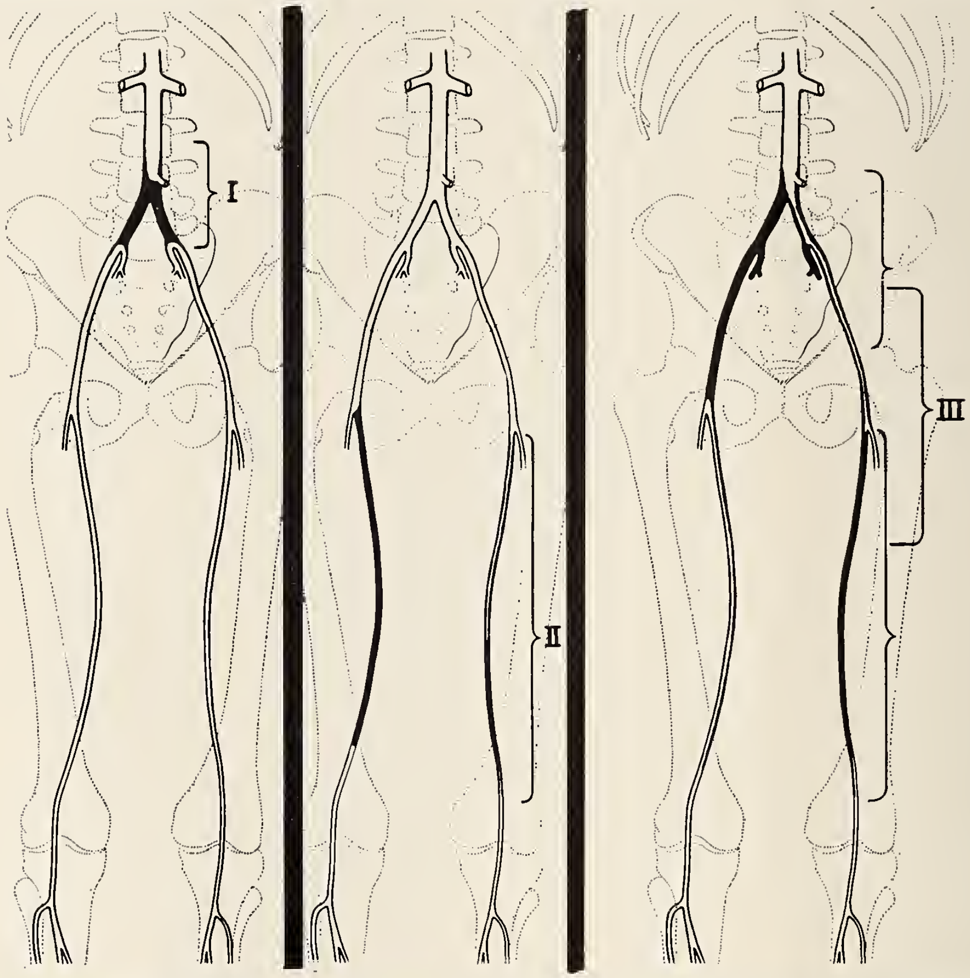

Figure 1.—Drawings from aortograms illustrating each of the three broad categories of arteriosclerotic thrombosis of arteries in the lower extremities: I. Simple aorta-common-iliac occlusion. II. Superficial femoral occlusion. III. Combined lesion with or without external iliac involvement.

of the series. There have been no instances of late thrombosis in either the segment on which endarterectomy was done or in the distal arterial tree in the patients upon whom the early patency was attained. In some cases more than six years has elapsed since operation.

The second large category of arterial obstructive lesions in the lower extremities is that of femoral artery thrombosis. Obstruction at this level tends to appear at a later age than the aorta-iliac lesions of the first category. In the present series the majority of patients noted their first symptoms after the age of 50. The predominant early symptom is calf claudi-

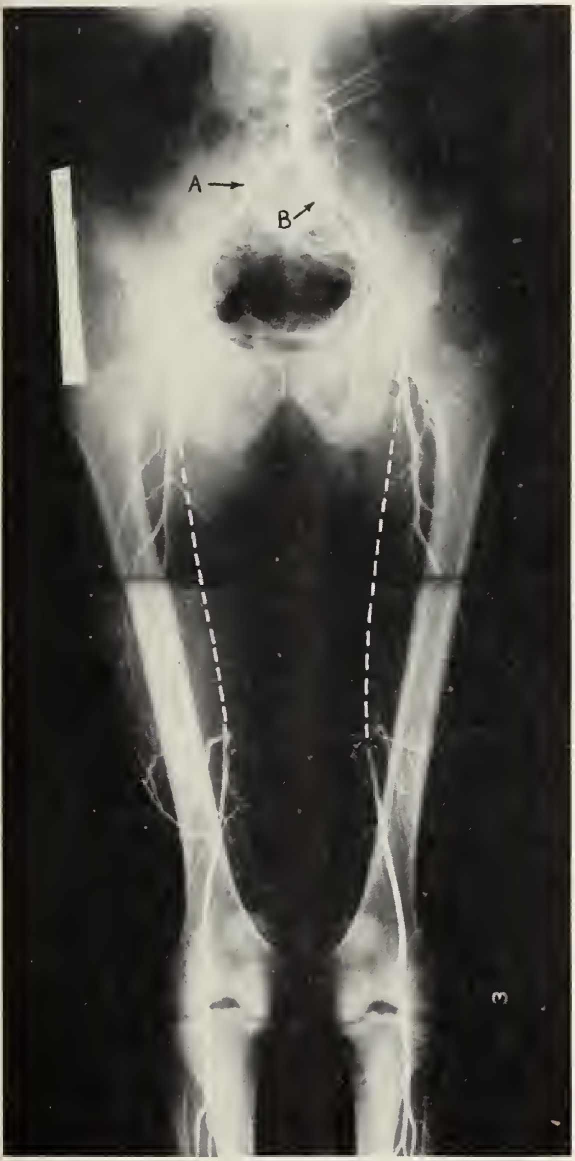

Figure 2.—Composite of serial aortograms showing arteriosclerotic stenosis of common iliac arteries, thrombosis of right hypogastric artery (*A*), stenosis of left hypogastric artery (*B*), and bilateral superficial femoral artery thrombosis (dotted lines). Note also the wide, smooth lumen of the popliteal arteries. The upper half of the illustration was photographed from the film exposed at the end of injection. The lower half was photographed from the third film in a series exposed approximately six seconds after the end of injection.

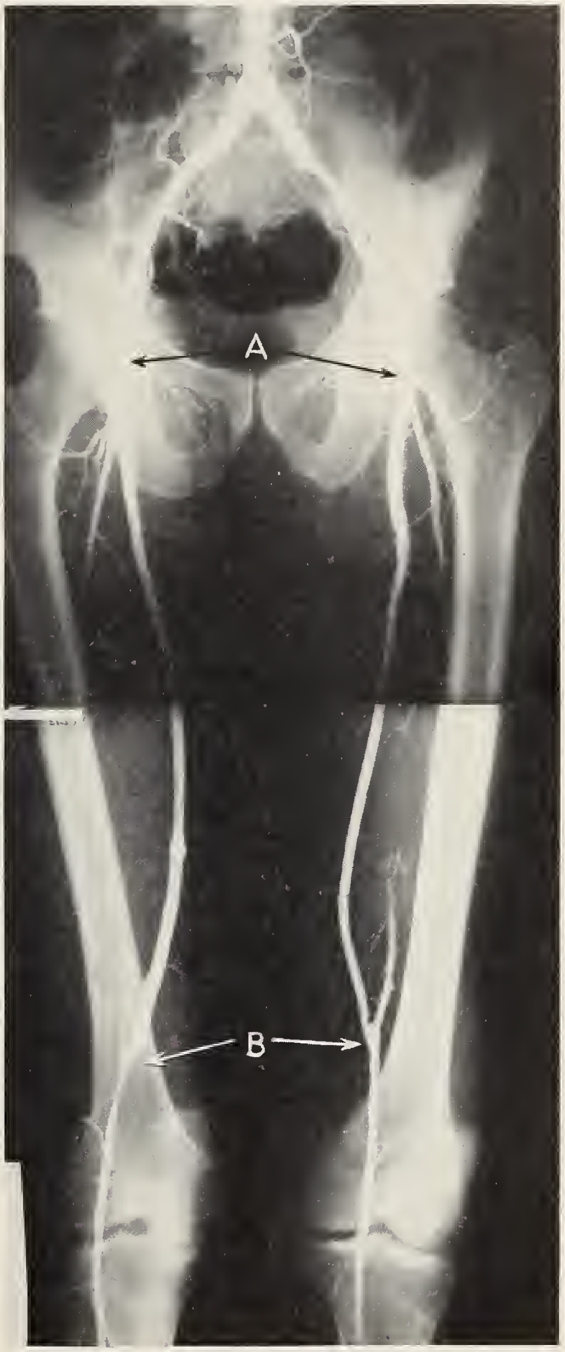

Figure 3.—Postoperative aortogram of patient shown in Figure 2. Thromboendarterectomy was carried out for the common iliac artery lesions. The superficial femoral arteries were by-passed with arterial homografts from the common femoral to popliteal arteries ($A \rightarrow B$). After operation, this patient had complete relief of all ischemic symptoms and was able to walk unlimited distances without discomfort.

cation. Manifestations of more severe ischemia than claudication in patients with a palpable common femoral pulse and absence of popliteal pulse usually have indicated the presence of additional occlusive or stenotic lesions at higher or lower levels.

Certain anatomic and pathologic considerations of femoral artery thrombosis cause this lesion to differ from aorta-iliac lesions with respect to operability and the prerequisites for carrying out a successful operation. The entire length of this artery, from the groin to the lower end of Hunter's canal, usually shows gross intimal disease about the entire arterial circumference. Occlusion, when it occurs, tends to involve the total length of the superficial femoral artery. Hence, for restoration of normal blood flow, arterial operations upon femoral artery occlusions ordinarily must begin at the level of the common femoral artery and extend the length of the thigh to the popliteal artery. Since the incidence of operative or late thrombosis of a grafted or endarterectomized arterial segment appears to be greater, the greater the length, or the smaller the caliber, of the new blood conduit, it is to be expected that this complication will appear more frequently with femoral artery operations. A further pathologic consideration is the degree of arteriosclerotic change in the distal popliteal artery.

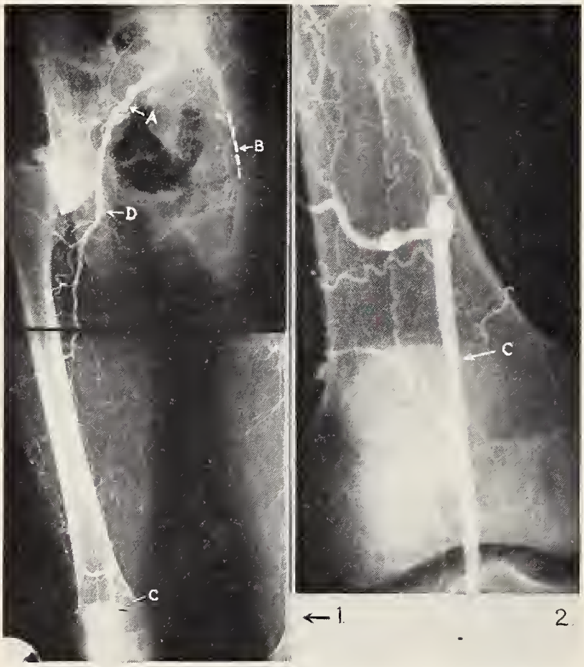

Figure 4.—Aortogram showing advanced arteriosclerotic changes in the proximal arterial tree and segmental thrombosis of the right superficial femoral artery. (View 2 is an enlargement of the popliteal artery shown in View 1.) Note that although there is occlusion of the right hypogastric artery (*A*), and of the left external iliac artery (*B*), the right common-external-iliac channel is widely patent. The open vessels above and the normal appearing popliteal artery (*C*), indicated the technical possibility of implanting a graft to by-pass the right superficial femoral artery ($D \rightarrow C$). After operation the patient regained right pedal pulses, and a partially gangrenous toe healed rapidly.

Although total occlusion of the femoral artery ordinarily terminates just beyond Hunter's canal, luminal irregularities in the popliteal artery of sufficient degree to impair free outflow of blood are frequently present. Since it has been shown that the incidence of thrombosis of an endarterectomized or grafted arterial segment is closely related to the degree of obstruction in the outflow tract, the extent of popliteal disease distal to the occluded femoral segment is an important factor in determining the suitability of a patient in this category for arterial operation. In a small number of patients, femoral artery thrombosis is associated with complete occlusion of the contiguous popliteal artery as well. This finding usually indicates inoperability, since arterial grafting into the smaller calf arteries is rarely successful.

It is apparent from the foregoing that in the situation of femoral artery thrombosis, the smaller caliber and the greater length of the femoral artery, and the tendency in some instances for extension of disease into the popliteal artery, combine to produce a less favorable situation for direct arterial opera-

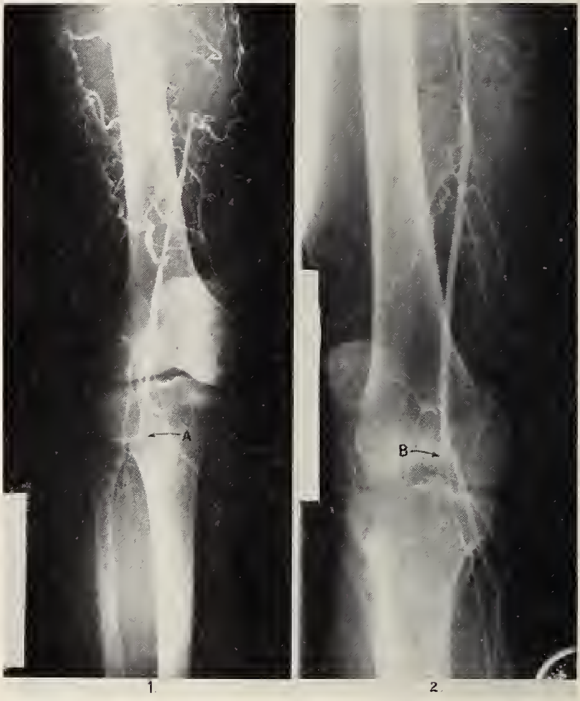

Figure 5.—Arteriographic demonstration of two forms of obstructive lesions in the distal, femoral arterial tree considered unsuitable for direct arterial operation. Note in photograph No. 1 that although the popliteal artery distal to a thrombosed femoral artery is patent in its midportion, there is occlusion at its distal end (*A*). In photograph No. 2, distal occlusion (*B*) precludes operation for this lesion.

tion than is found at higher levels. It is also apparent that arteriography assumes a major role in assessing the operability of femoral thrombosis.

Our experience with arterial operative procedures for femoral artery thrombosis is based on a series of 35 operations. In 17, thromboendarterectomy was used to reopen the occluded arterial segment. Thrombosis in the arterial segment operated upon developed in four patients immediately after operation and in four additional patients at intervals varying from one to four years after operation. Eighteen patients were treated by homograft by-passes, because of the possibility that an arterial by-passing operation might improve these results. Thrombosis developed in the graft at the time of operation in one case, but patency was established by immediate reoperation and removal of the thrombus. In 13 cases the graft has remained patent in a 12-month period of observation. Late thrombosis appeared in three cases, at seven, eight, and nine months, respectively, causing the same degree of ischemia that had existed before operation. In no case was ischemia increased beyond that originally present as a result of thrombosis of the graft. All patients initially regained at least one pedal pulse and were completely relieved of the preoperative complaint of claudication. In three patients with early gangrenous changes in one or more toes, the necrotic lesions healed rapidly. Although long-term observations are necessary for final evaluation, it is our belief that the presence of clearly segmental obstruction of the femoral artery is an indication for consideration of an arterial by-passing operation.

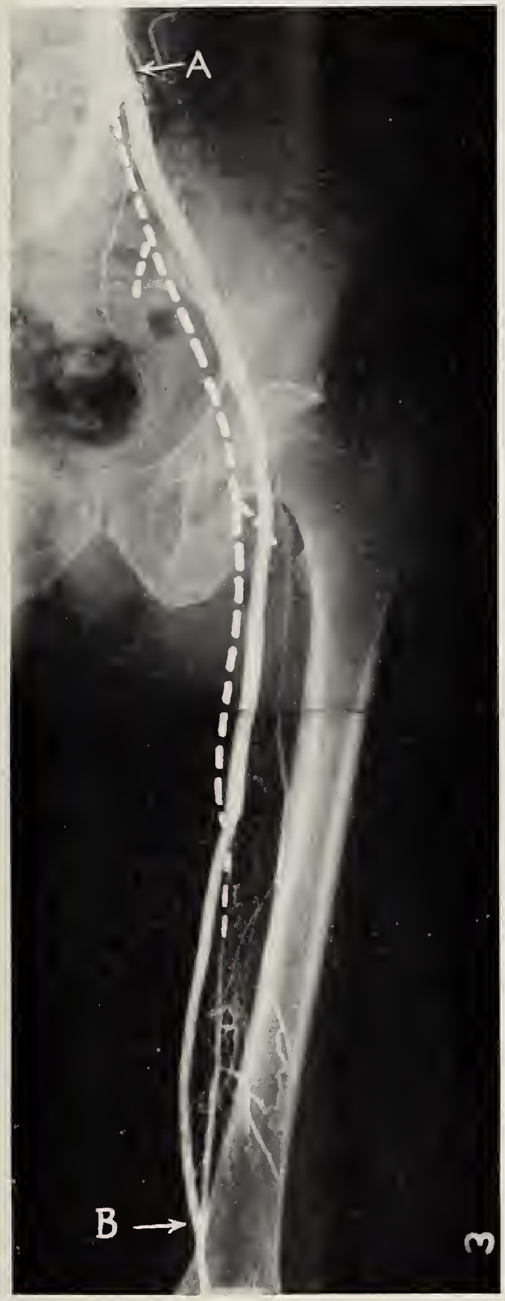

Figure 6.—Postoperative aortogram in a patient with intractable pain in the foot due to thrombosis of the entire length of the left iliac and femoral arterial system (dotted line). Preoperative demonstration by aortography of the patency of the popliteal artery and vessels distal to it indicated the technical feasibility of by-passing the occluded segment. This was accomplished by the graft shown here extending from the side of the aorta (*A*) to the side of the popliteal artery (B), with subsequent relief of all ischemic symptoms.

The third and most challenging category of arteriosclerotic disease in the lower extremity is that of multiple occlusions, or stenotic zones, involving both femoral and aorta-iliac areas. For reasons of prognostic and therapeutic significance, we have arbitrarily included in this group the aorta-common-iliac lesions that show extensive involvement of the external iliac arteries as well. This category of lesions has tended to be associated with more widespread arteriosclerotic involvement of arteries in other areas of the body. Most patients with complaints referable to advanced ischemic changes in the feet (manifested by rest pain or gangrene) have been shown by aortography to fall into this group. Although the results of operative treatment have been less encouraging for patients in the third category than in the other two, we have found that in approximately 40 per cent of such patients there exist thrombosed arterial segments and that reopening or by-passing them results in significant relief of ischemic manifestations.

For patients in this third category, when the proximal lesion is in the aorta-iliac area and if aortography shows that the external iliac arteries are uninvolved, we believe that thromboendarterectomy of the proximal lesion is indicated. This procedure alone may increase blood flow in the extremity to such a degree as to establish a satisfactory palliative result. If there are associated femoral lesions which show patent popliteal segments distally, a second by-passing operation may even restore normal circulation to the extremity. Two patients with this combination of operable lesions had complete relief of all symptoms and restoration of pedal pulses after aorta-iliac thromboendarterectomy and bilateral femoral by-passes. Criteria for selection of operative methods for combined simple obstructive lesions at high and low levels are the same as if these lesions existed singly. One patient with extensive iliac-femoral thrombosis was successfully treated with a by-pass graft from the aorta to the popliteal artery. For external iliac thrombosis, either alone or associated with aorta-common iliac lesions, we have tended to select a by-passing method rather than thromboendarterectomy, because of the length and smaller caliber of the thrombosed segment. The higher incidence of immediate or delayed graft thrombosis for extensive grafting operations (seven of twenty-one cases) from the aorta-iliac area to one or both common femoral arteries has led us to conclude. however, that neither procedure shows a clear superiority over the other.

The most important prerequisite for determining the suitability of patients for either form of direct arterial operation is the full and accurate definition of the location and extent of the occlusive lesions by preoperative arteriography. We are not in agreement with observers who believe that an adequate evaluation of the extent of arterial disease can be made by clinical examination alone, or that the choice of operative method can be best determined by surgical exploration. The adoption of this policy would have led, in our experience, to overlooking significant but not clinically demonstrable associated arterial lesions in numerous patients, and to subjecting many others (who have been found by arteriography to have inoperable lesions) to needless and hazardous exploratory operations. The highest level to which the great majority of complete or nearly complete arteriosclerotic occlusions may extend is the abdominal aorta at the level of the renal arteries. At present the lower extent of operability is the distal popliteal artery. Hence, the portion of the arterial tree that should be demonstrated with accuracy extends from above the renal arteries to just below the popliteal arteries. This objective is best accomplished by aortography. Full-length films (36 inches) and multiple exposures are taken, using a sufficient volume and concentration of radiopaque media to fill the arterial tree, distal as well as proximal to the occluded segment, when complete occlusion is present.

In the three categories described in the foregoing, 350 translumbar aortograms were made to visualize arteriosclerotic obstructive lesions. The complications of aortography were: Transient depression of renal function in 12 patients, transverse myelitis in one patient (with almost complete return of neurological function within three months), and stricture of the sigmoid colon in one patient. One death occurred, which was attributed to uremia resulting from bilateral renal artery thrombosis. In only one instance was the accuracy of the arteriographic diagnosis not confirmed at operation. The morbidity statistics on aortography given here are reported to present a broader assessment of the degree of risk attached to aortography, and to place the isolated reports of serious complications of aortography in proper proportion. In our experience the diagnostic value of aortography has far outweighed the hazards. It has permitted the surgeon to determine not only the degree of operability but to select the most desirable surgical method.

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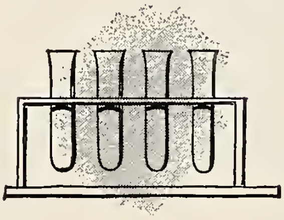

Aneurysm of the Abdominal Aorta

The Prognosis of the Condition if Untreated

EDWARD SHAPIRO, *M.D.*, Beverly Hills

• In a study of the autopsies of 87 patients at Cedars of Lebanon and Los Angeles County General hospitals, it was noted that 38 had died from rupture of the aneurysm and 49 had died of unrelated diseases, the aneurysm being intact postmortem. At each age group from 50 to 85 years, just as many patients who had the lesion died from rupture of the aneurysm as from other causes.

It was found that predisposing to rupture of the aneurysm was not the age of the patient, not hypertension, but definitely the size of the aneurysm. Aneurysms under 6 cm. in diameter (most are visible by x-ray) rarely ruptured.

ALTHOUGH ARTERIOSCLEROTIC ANEURYSM of the abdominal aorta is not common, the serious possibility of lethal rupture gives physicians constant concern about such a lesion. No one doubts the wisdom of surgical excision of a 10 cm. aneurysm in a vigorous man in his fifties or early sixties. However, with the general increase in longevity there is an increasing number of cases of abdominal aortic aneurysms in older people.[3] What attitude should be developed concerning these lesions in patients 70 years of age and older? What is the natural history of these aneurysms? What happens to patients not given the benefit of elective surgical treatment? Very few physicians see enough patients with aneurysms of this kind to gain first-hand experience.

MATERIAL

For answers to these questions study was made of the protocols of 87 patients who at autopsy were observed to have intact or ruptured arteriosclerotic aneurysms of the abdominal aorta. The protocols were taken from the files for the years 1948 to 1955 in order to embrace the era of increased longevity beginning with the advent of widespread use of antibiotics. A private hospital (Cedars of Lebanon) and a county hospital service (Los Angeles County) were used in an effort to balance economic and ethnic factors.

How valid are these data? Admittedly the series is small; however, the disease is not common. Since the diagnosis of abdominal aortic aneurysm, ruptured and intact, can be made by gross inspection, there can be no dispute about the presence or absence of the lesion. All the aneurysms in the cases studied originated below the renal arteries.

Is this series a fair representation of the disease in the population at large? Rupture of the aneurysm is a terrifying and painful incident which usually causes admittance to hospital. Many senescent persons with abdominal aortic aneurysm that does not rupture, however, die quietly at home of undramatic heart disease and strokes. Hence, this series, since it includes only patients who were admitted to hospital, may include a more than ordinate number of cases of rupture.

How long the aneurysm in each case had been present before death is impossible to estimate, since the lesions were observed postmortem. However, had the data been obtained from operative reports, it probably would be no better in this respect, for even the surgeon excising the aortic segment cannot tell how long it had existed. Every physician knows of an exceptional patient bearing an aneurysm for a decade or even longer.

RESULTS

Reports of a total of 87 cases were found in the records, in 38 of which the patient had died of rupture (Chart 1). In 49 cases intact aneurysms were observed incidentally and death had been brought about by unrelated causes. The difference between the two classes of hospital patients was insignificant. The ratio of men to women was about 4 to 1.

Do patients die of ruptured aneurysm at a significantly earlier age than patients with intact aneurysms? When the cases of ruptured and of intact aneurysms in this series were charted by age at death, the two curves were practically the same (Chart 2). Regardless of age, at least in Los Angeles County, a patient with an untreated abdominal aortic aneurysm has the identical statistical chance to die from an unrelated disease as from rupture of

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From the Cedars of Lebanon Hospital and the University of Southern California School of Medicine Service at the Los Angeles County General Hospital.

Presented before the Section on General Surgery at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

the lesion. Were it otherwise, the curves would appear as in the shaded area in Chart 2.

What, then, are the circumstances that increase the likelihood of death from rupture? While the likelihood of aneurysms developing increases as the patient ages, the prospect of death from other causes also increases. Although hypertension accelerates atherosclerosis in the heart, brain, retina and kidney, it seems not as significant a factor in causing aneurysm or increasing the propensity to rupture. Left ventricular hypertrophy and increased weight of the heart remain the only reliable verifications of essential hypertension of sufficient degree and duration to be considered a pathogenic influence. Blood pressure readings in aged persons are often unreliable owing to the widened pulse pressure disparity. Thickening of the left ventricle and increased heart weight were noted in 32 per cent of the cases of ruptured aneurysm and in 39 per cent of cases in which the patient died with intact aneurysm (Chart 3).

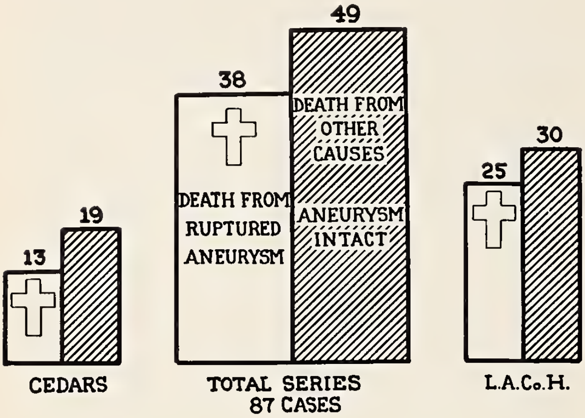

Chart 1.—Comparison of ruptured and intact aneurysms at autopsy.

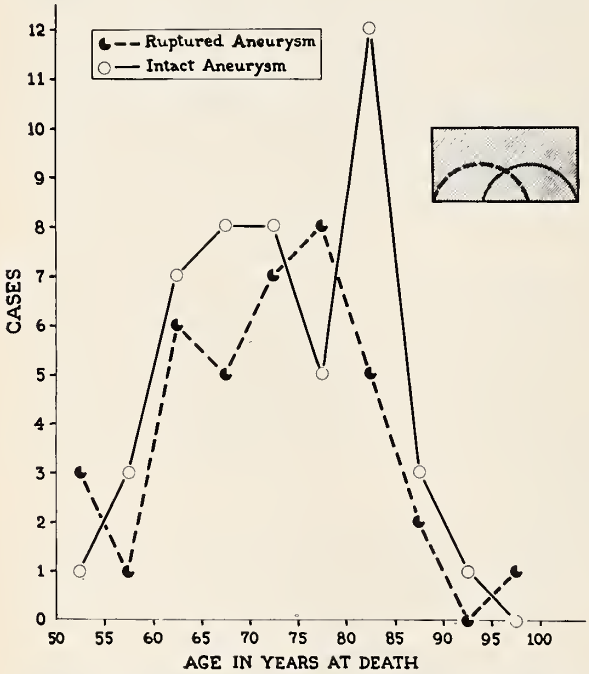

Chart 2.—Distribution of ruptured and intact aneurysms by age in hemidecades. Shaded inset shows how curves would appear if patients with ruptured aneurysms died earlier.

The size of the aneurysm is directly related to its propensity to rupture—the greater the size, the higher the incidence of rupture (Chart 4). Aneurysms less than 5 cm. in diameter in this series did not tear. How many months or years it takes for an aneurysm to grow from relatively safe to hazardous size is not yet known.

DISCUSSION

Wright[5] assayed the future of a patient with an abdominal aortic aneurysm as "comparable to many forms of cancer." He advised surgical resection and homograft as soon as the diagnosis was established if the patient were reasonably fit. Of 15 patients so treated, nine survived. De Bakey[2] said that the mortality rate in patients with unruptured aneurysm that he has operated upon of late is about 7 per cent, but that the rate increases with advancing age, hypertension and preexisting heart disease as complicating factors.

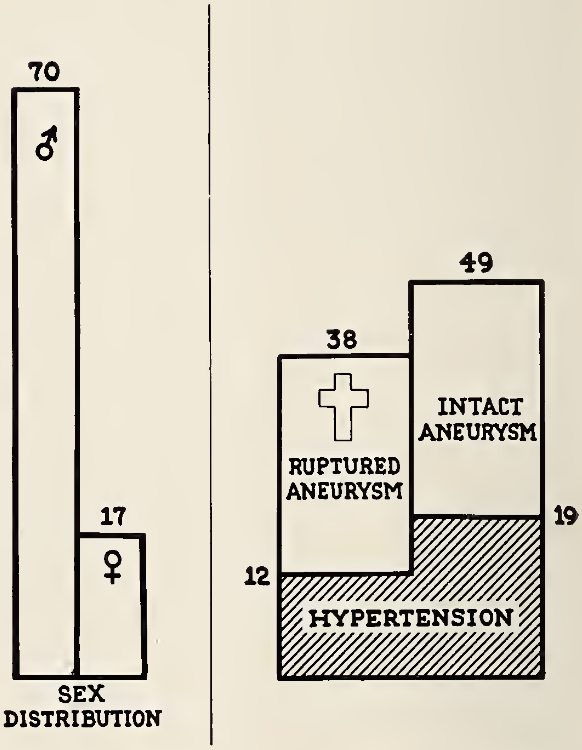

Chart 3.—Incidence of hypertension in ruptured and intact aneurysms.

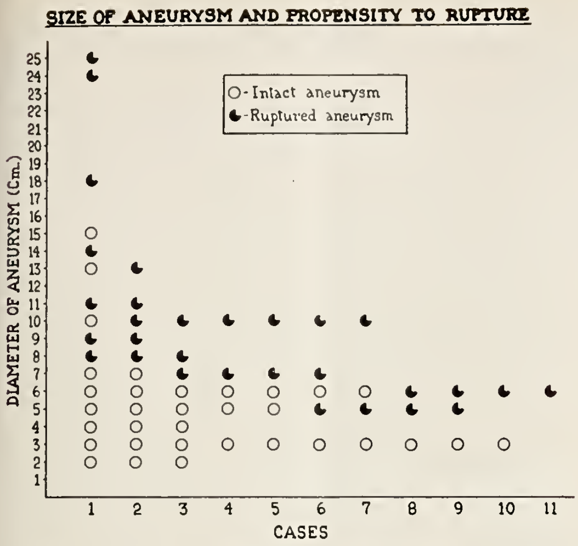

Chart 4.—Size of aneurysm and propensity to rupture.

Crane's[1] attitude appears, at this time, more logical: Once aneurysm is suspected from the expansile pulsation, the diagnosis can be established by plain and lateral radiographic exposures of the abdomen. Linear streaks of calcification or a soft tissue shadow will permit measurement of the diameter of the aneurysm in 86 per cent of the cases.[4] Because of the distance between the aneurysm and the film at 60 cm. tube-target distance, 15 per cent of the width should be subtracted. Small aneurysms—5 to 7 cm. or less in diameter—can be observed radiographically every three months. If calcification or a soft-tissue shadow is not visible, the diameter of the aneurysm can be roughly estimated by palpation and subtraction of the width of the panniculus. Growth of the aneurysm indicates a need for prompt surgical treatment.

Rules can never take the place of medical judgment. Younger patients with aneurysms of diameter greater than 5 cm. should be recommended for resection and graft. Older patients, especially those with severe coronary, cerebral or pedal atherosclerotic disease, should be watched carefully and warned about the seriousness of syncope and pain in the abdomen or back. Any abdominal aortic aneurysm, regardless of size, that causes symptoms merits immediate surgical treatment.

CONCLUSIONS

At any age, in Los Angeles County, there is an equal statistical chance that a patient with an abdominal aortic aneurysm will die of an unrelated disease as from rupture of the lesion.

Aneurysms less than 6 cm. in diameter rarely rupture. A conservative course of careful observation is justified in these cases.

In senescent patients with large aneurysms, the physician must rely on his judgment.

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Prevention of Cardiac Arrest

The Role of the Anesthesiologist

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• Many operating room deaths from "cardiac arrests" are potentially avoidable as well as potentially reversible. The incidence of these catastrophes may be substantially reduced by careful and adequate preoperative evaluation and preparation of the patient, by constant care and vigilance in the administration of anesthetic agents and adjuvants, and by close cooperation between members of the surgical team, with the safety of the patient being the first consideration at all times.

THE STEADY INCREASE in the number of articles in the literature dealing with the subject of "cardiac arrest" is evidence of mounting interest in and awareness of this problem. The fact that the advent of courses to teach the technique of cardiac resuscitation has greatly increased the incidence of successful resuscitations (in some instances from about 20 per cent to 67 per cent[1]) indicates that the problem of the treatment of cardiac catastrophes is being vigorously attacked. However, the incidence of "cardiac arrest" in the operating room has not been reduced much. The biggest remaining problem in this field, then, is the prevention of these catastrophes. Although cardiac arrest may be unavoidable despite precautions, in some cases, in many it is potentially preventable.

The role of the anesthesiologist in the prevention of cardiac arrest cannot really be separated from that of the surgeon, or of the internist, cardiologist, general practitioner or other physicians who are concerned with the preoperative, operative or postoperative care of the patient.

Preoperative Investigation

By and large the patient who enters the operating room in as near to the normal physiological state as possible is the best "surgical risk." He is best able to withstand the trauma of anesthesia and operation. In these circumstances the possibility of cardiac arrest is least, and if it does occur the probability of successful resuscitation is greater. Before operation every patient should be fully evaluated by the entire surgical team and any departure from a physiological state should be corrected. A patient with a low volume of blood is predisposed to shock. The slightest surgical trauma and the induction of an anesthetic state may greatly reduce circulatory efficiency—perhaps to a critical level. A deficiency in hemoglobin is indicative of a low oxygen-carrying capacity, and an anemic patient may already be suffering from "anemic hypoxia."[4] Any further bout of hypoxia during anesthesia (caused by struggling during induction, for example, or respiratory obstruction) may tip the scales toward cardiac arrest. Since hypoxia makes the myocardium especially susceptible to depression by anesthetic agents, drugs given in otherwise safe amounts may cause circulatory collapse. Since dehydration reduces the volume of blood, anemia may be present but not detectable by hemoglobin determination or hematocrit. Electrolyte imbalances will cause fluid volume shifts and in addition may be responsible for some cases of prolonged apnea due to muscle relaxants, or for some abnormalities of cardiac function. The patient who is in a "hypermetabolic state" (thyrotoxicosis, fever or extreme apprehension) starts out with a "demand hypoxia,"[4] and will be able to withstand less additional stress or hypoxia.

Cardiorespiratory function should be investigated and, if need be, improved by correcting causes of "tidal hypoxia" (depression of the respiratory center by drugs or trauma; interference with intercostal function by crushing chest injuries, chest splinting, intercostal paralysis or constricting dressings; or interference with diaphragmatic action by abdominal distention, pneumoperitoneum, splinting of the diaphragm or abdominal binders). Also to be dealt with are "alveolar hypoxia" (intrapulmonary disease) or "stagnant hypoxia" (congestive heart failure). A patient in congestive failure is one of the poorest anesthetic risks.[4] Patients should be specifically questioned regarding a history of asthma, for asthma is a relative contraindication to the use of thiobarbiturates or cyclopropane. If the patient has taken cortisone or chlorpromazine or a "tranquilizer" drug beforehand, the reactions to anesthetic agents may be seriously affected and the choice of anesthetic agents or techniques may be considerably restricted. Any previous untoward reactions to anesthesia should be carefully considered.

Presented before the Section on Anesthesiology at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

At the time this article was written, Dr. Bissonnette was Instructor in Surgery (Anesthesia), University of Southern California School of Medicine.

Since aspiration of vomitus is one of the foremost causes of death in the operating room, the stomach should be empty before anesthesia. In the case of emergency operation the stomach should be emptied, if possible, by induced vomiting or by aspiration through a tube as large as can be passed into the stomach. If this is not practicable, either the esophagus or the trachea should be sealed off before general anesthesia is induced. A patient with abdominal distention is particularly liable to regurgitate under the influence of anesthesia and induced muscular relaxation. The use of regional anesthesia lessens, but does not obviate, the possibility of vomiting and aspiration.

It must be borne in mind that the anesthetic and surgical risk in a poorly prepared patient may far outweigh the risk of delaying operation even in exigent cases. The complete preoperative evaluation of the patient takes time. The anesthesiologist, who usually has had the least previous contact with the patient, is at a distinct disadvantage unless all available information is supplied to him by the other members of the team. The patient should be admitted to the hospital as long before operation as possible. All pertinent details of the history and physical examination should be available at the time of admittance. Laboratory work should be done, if possible, before admittance. The anesthesiologist should take advantage of this information by visiting the patient before operation, making his own evaluation and selecting the pre-anesthetic medication as well as the anesthetic agents and techniques on an individual basis.

Stand-by Equipment

Of much more importance than the specific anesthetic agent or technique selected is the skill and care with which it is employed. All anesthetic agents in use today are potentially lethal, and they should be administered with proper precautions. There is probably no concept more dangerous in the practice of anesthesiology than that expressed in the epithet "just a little pentothal." Regardless of the magnitude of the surgical procedure, there is no such thing as a minor anesthetic. Every anesthetic procedure is hazardous, and none should be undertaken unless the proper equipment is immediately available. This should consist of at least the following: A means of administering oxygen under pressure (preferably an anesthesia machine), suction apparatus, a vasopressor drug, and an ultra-short acting barbiturate. It is advisable to also have a means of intubating the trachea and a rapid-acting muscle relaxant.

During the induction of general anesthesia the patient is ordinarily given larger amounts and greater concentrations of these potentially toxic agents in a shorter period than at any other time in the entire course of anesthesia. Certainly this is the time when cardiac arrest due to a relative overdose of anesthetic agents (with concomitant myocardial depression) is most likely to occur. Unnecessary risks should be avoided. The patient's life should not be jeopardized by rushing the induction for the sake of saving a few minutes—certainly an insignificant saving at best. The administration of oxygen for a few minutes before induction will tend to minimize myocardial depression.[2] If cardiac arrest should occur during the induction of anesthesia, the surgeon should be immediately available—either in the operating room or just outside the door—for thoracotomy. The time needed to summon him even from a nearby corridor may be costly.

Observing the Patient During Anesthesia

During the course of anesthesia and operation, the anesthesiologist should be continually alert to prevent or to detect and correct any alterations in the patient's physiological status that might result from inadequate ventilation (both oxygenation and carbon dioxide elimination), from obstructed airway, from changes of position or unphysiological positions, from loss of blood, from excessive depth of anesthesia or excessive height of spinal anesthesia, or from surgical trauma. This requires constant attendance upon and constant and careful observation of the patient. Any lesser vigilance is unprofessional.

The use of some device to constantly monitor the heart action is certainly desirable—particularly in pediatric anesthesia. Cathode ray oscilloscopes, electrocardiographs and other electronic monitors are valuable aids for the early detection of hypoxia, excessive depth of anesthesia and arrhythmia. However, they are expensive, they tend to distract the attention of the anesthesiologist from the patient, they are best interpreted by a trained electrocardiographer, and they will continue to record an electrocardiographic pattern after the heart has ceased beating adequately. I prefer an auscultatory device such as the Ploss "constant monitor" system,[3] which is unexcelled for maintaining continuous surveillance of circulatory function. One of the best "oximeters"—and certainly the cheapest and most readily available during most operations—is the color of the patient's arterial blood. This should be observed throughout the procedure by both the anesthesiologist and the surgeon. Perhaps the most important concept in anesthesiology is that the requirements of the surgical procedure, and surely the convenience and comfort of any individual, should be subordinated to the safety of the patient. This should be borne in mind during the entire surgical procedure—starting with the decision to operate.

In the immediate postoperative period, the anesthesiologist must be alert to prevent or correct any respiratory depression (particularly if muscle relaxants or narcotics have been used), or any airway obstruction or circulatory inadequacies. Having the patient as nearly awake as possible immediately after operation, and gentle handling in transferring him from the operating table to a stretcher and then to bed. will prevent many such complications.

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Intermittent Positive Pressure Breathing

A Clinical Evaluation of Its Use in Certain Respiratory Diseases

ROGER H. L. WILSON, *M.D.*, SEYMOUR M. FARBER, *M.D.*,
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• A series of patients with chronic respiratory insufficiency were treated with intermittent positive pressure breathing, which was combined with administration of bronchodilator drugs of the epinephrine series. Spirographs were made before and after treatment. The series included patients with chronic bronchitis and emphysema, fibrosis of various kinds, senile emphysema and bronchogenic carcinoma.

Although the majority showed objective improvement, a significant proportion in all groups did not, and some were made worse, apparently on a basis of check valve mechanisms unresolved by the bronchodilator drug. In cases in which the method benefited the patient, the benefit was greater than that obtained with bronchodilator drugs alone.

INTERMITTENT positive pressure breathing is generally thought to be a considerable augmentation of the armamentarium for the treatment of certain types of respiratory disease. Many hospitals and physicians' offices are equipped to administer it and some patients have the equipment in their homes. Simplification of the equipment has made the valves easy to maintain and use. Hence there is need to define the range of therapeutic usefulness for this form of treatment, since indiscriminate and uncritical use may give rise to a biased view of its value.

The purpose of this presentation is to discuss some of the common short-term and long-term applications of intermittent positive pressure breathing (IPPB), and to report on studies of use of it in treating patients with chronic respiratory failure (Table 1).

SHORT-TERM USES

The prevention and treatment of atelectasis by intermittent positive pressure breathing has been accepted as a prime application by many physicians, but the application to postoperative and aspiration pneumonia is less widespread than it should be. Intermittent positive pressure breathing is more efficient in preventing than in treating atelectasis, especially where the normal coughing mechanism is inefficient. The authors have noticed this particularly in poliomyelitis with the patient requiring a respirator. Under these conditions a cough machine (OEM Cofflator®) has been more efficient in treating established atelectasis than the Bennett-Monaghan intermittent positive pressure apparatus. The occasional use of positive pressure to maintain a paralyzed patient while outside a respirator to permit nursing care and change of equipment is so common that modern respirators usually include a valve for the purpose. The authors have used it with considerable success in such problems as pseudobulbar palsy and cerebral catastrophes involving hypoventilation, and also for hyperventilation of acutely acidotic patients. In the latter use, difficulties were experienced in three cases: An increase of bullous emphysema led to air trapping with presumed increase of size of bullae. As a result the patients were unable to tolerate intermittent positive pressure breathing, since it reduced effective ventilation. This complication is quite easily noticed, however, and we believe that intermittent positive pressure breathing should be tried whenever acute respiratory acidosis is suspected. If necessary, tracheotomy may be done with the use of a special

TABLE 1.—*Common Applications of Intermittent Positive Pressure Breathing.*

Short-Term Uses

1. To prevent or treat atelectasis due to mucus plugging of bronchi.
2. To hyperventilate a patient with acute respiratory acidosis.
3. To relieve pulmonary edema.
4. To maintain ventilation in respiratory paralysis.

Long-Term Uses

1. To hyperventilate patients with a continuing problem of inadequate and uneven ventilation especially in pulmonary emphysema.
2. To assist in the removal of tenacious or excessive mucus from the bronchial tree.
3. To prevent local plugging of air passages and reinflate atelectatic areas.
4. To disseminate nebulized medication in the bronchial tree.

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Presented before the Section on Internal Medicine at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

adaptor for administration of intermittent positive pressure breathing. In the presence of tracheotomy, it appears desirable to use a cough machine as well. We believe that intermittent positive pressure apparatus is much more convenient and efficient than any other kind of mechanical ventilator.

We have little experience of the use of intermittent positive pressure breathing in pulmonary edema, although there have been favorable reports on use of the apparatus at pressures not over 10 cm. of water. There are some emphysematous patients in whom an acute exacerbation of bronchitis causes such restriction of ventilation together with outpouring of mucus that a cough machine in addition may be needed.

LONG-TERM USES

The four aspects to be considered in patients with chronic bronchitis and emphysema are ventilation, expectoration, reinflation and medication.

The question is whether a patient with chronic pulmonary disease is likely to be benefited by intermittent positive pressure breathing. Questions that ought to be considered before a patient is committed to long-term therapy are: Is any subjective improvement due to the improvement of arterial oxygen saturation as a result of breathing oxygen? Is it due to the bronchodilator drug administered concomitantly? Is it purely psychological? Will long-term therapy—if there is no immediate benefit—be justified in patients with bellows inefficiency, as a way of mobilizing the chest wall and diaphragm? These relationships are discussed in terms of observations in a series of patients studied by the authors.

METHODS

All the 95 patients in the series had complaint of shortness of breath. Study consisted of spirography with a rapidly revolving drum and a rebreathing test, each after 15 minutes of quiet sitting in a chair. This was followed by 15 minutes of intermittent positive pressure breathing with a Bennett valve and administration of a bronchodilator, 2.25 per cent racemic epinephrine (Vaponefrin®). Restudy was done immediately. In some cases multiple studies with other bronchodilator drugs and inert substances were performed on different days. Objective changes in the volume and velocity of forced expiration formed the basis of classification (Chart 1).

In many cases a further combined blood gas analysis was performed at another date. This provided objective evidence with regard to ventilation perfusion relationships. Most of the patients had chronic bronchitis with emphysema, but the series included patients with pulmonary fibrosis, dry emphysema, and carcinoma of the lung.

TABLE 2.—*Patient Response on Intermittent Positive Pressure Breathing.*

Diagnosis	Total Patients	Improved	No Change	Worsened
Chronic bronchitis and emphysema	36	24	6	6
Emphysema	12	4	5	3
Fibrosis	18	5	9	4
Bronchogenic carcinoma	13	4	7	2
Cysts or bullae	8	3	3	2
Miscellaneous pulmonary disease	8	5	2	1
	95	45	32	18

RESULTS

Of 48 patients with emphysema, either associated with pulmonary fibrosis or associated with chronic bronchitis, 28 were benefited by intermittent positive pressure breathing, 11 showed no essential change and nine worsened (Table 2). Some patients in the chronic bronchitic group were not improved as measured directly after the first 15 minutes of intermittent positive pressure breathing. They could be divided into two groups, those in whom there was definite measurable worsening, and those in whom improvement was noted upon subsequent examination. Definite benefit was demonstrated in patients with pronounced mucus retention, and in those with a combination of pulmonary fibrosis, bronchiectasis and emphysema. Patients with senile emphysema, sarcoidosis in a relatively active phase and other similar conditions, were usually not helped. Improvement in patients with cancer of the lung depended on the amount of coexisting emphysema.

The results in eight patients with cystic disease varied widely. In one case objective evidence was obtained that with enlargement of bullae there was a decided deterioration of respiratory function, and conversely as the bullae got smaller there was improvement. The cystic disease in these patients was presumably of check-valve type with tension. They also showed the changes of bronchitis and emphysema. The possibility of intermittent positive pressure blowing up the cysts cannot be disregarded, despite the bronchodilator effect of the Vaponefrin®. These patients usually improved on nebulized epinephrine without intermittent positive pressure. Three patients with cystic disease had definite improvement; in one of them the vital capacity was more than doubled, with a comparable acceleration of expiration.

Five other patients, one each with pulmonary tuberculosis, destroyed right lung, collagen disease of the lung, rheumatoid spondylitis and bronchiectasis, were improved. Of two patients with pectus excavatum, one showed no change and one a deterioration of function.

All the patients who worsened or who were not improved felt they were better—an example of the well known effect of giving a new form of therapy to a patient in distress. In the group showing no benefit were patients who had cough and accumulation of sputum but who were at their best at the time of examination. Many of these patients did have improvement when restudied at a later date. It seemed clear that they were of the kind needing occasional ventilatory therapy.

Patients who had increased production of sputum at varying times, such as with small respiratory infections, also were helped. In such cases remarkably little respiratory tract infection requiring treatment in hospital occurred if intermittent positive pressure therapy was used carefully and sufficiently. Some patients who previously had had to be put in hospital a number of times had no need to return after they began to use intermittent positive pressure breathing when needed, in their homes or at the office or clinic. Intermittent positive pressure therapy is less useful in a patient without thick mucus who has senile emphysema. Yet when such patients had coughs and colds the duration of illness was considerably reduced by intermittent positive pressure therapy, although it was not of benefit when the patient was better.

Routine daily use of intermittent positive pressure breathing decreased carbon dioxide retention in patients with chronic respiratory acidosis. In such patients the amount of carbon dioxide in the blood may be considerably lessened shortly after treatment

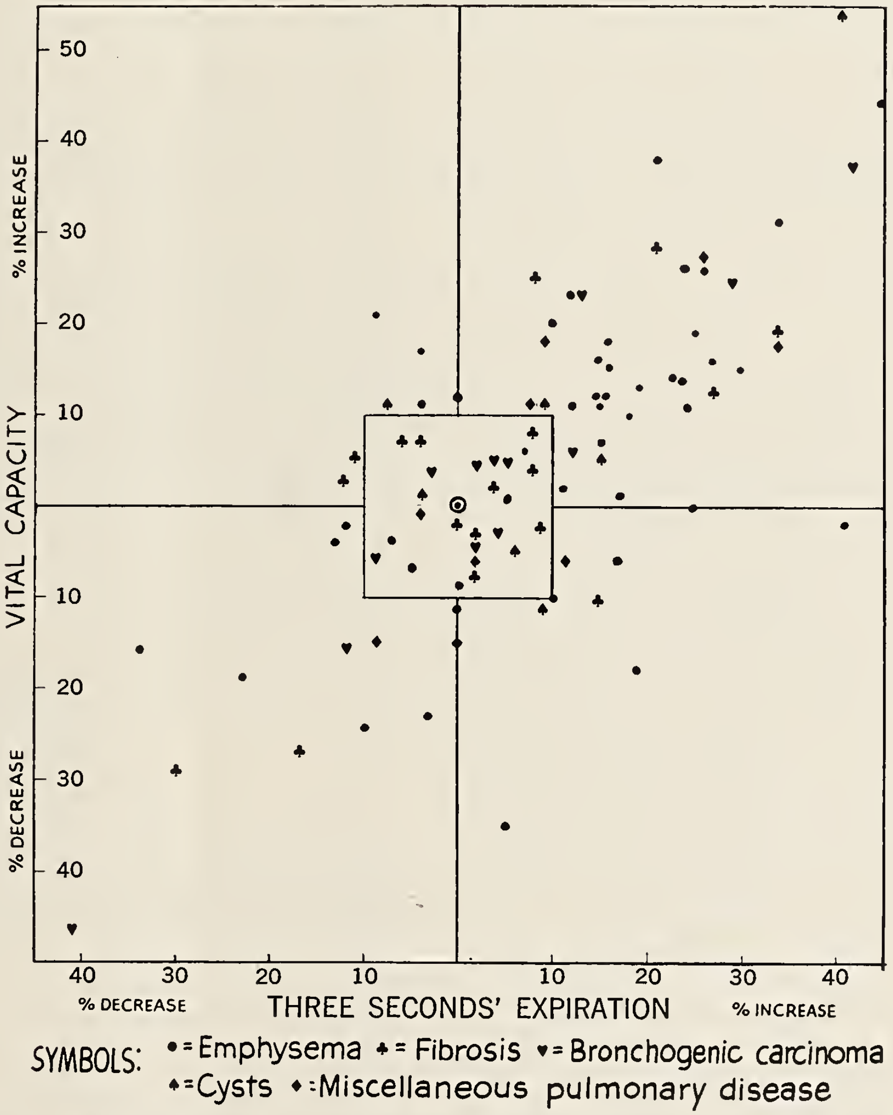

Chart 1.—Objective changes following intermittent positive pressure breathing in terms of volume (vital capacity) and velocity of forced expiration (amount expired in three seconds).

is started. The more even ventilation produced by the larger tidal volume must be advantageous to these patients. No study was made of carbon dioxide tension in a control group, but it seems a reasonable clinical assumption that a patient with chronic respiratory acidosis caused by uneven ventilation will be benefited by reduction of the carbon dioxide level for periods during the day.

COMPLICATIONS

Serious complications as a result of intermittent positive pressure therapy occurred in four cases. In one patient with pneumoconiosis, spontaneous pneumothorax was induced. In two patients with bullous emphysema who had previously been helped by intermittent positive pressure breathing, enlargement of cysts occurred, and after that episode intermittent positive pressure breathing became deleterious. In the remaining patient, who had been much assisted by the treatment, a sudden attack of coughing brought about an uncorrectable leakage flow situation in which intermittent positive pressure breathing diminished the vital capacity and the tidal volume. It is assumed that in this case the equivalent of enlargement of bullae developed, probably freely communicating but possibly of a check-valve type. In none of the four cases did bronchodilator drugs do much to help, and all eventually died of respiratory failure.

COOPERATION OF PATIENT

For intermittent positive pressure breathing to be effective, the patient must permit his lungs to expand fully. The design of the equipment is such that when pressure becomes equalized the valve will turn off. but many patients tend to blow, which cuts off inspiration at or before the vital capacity peak. If the patient will cooperate, larger volumes can be inspired. A value of as much as 675 cc. above the inspiratory reserve was recorded in the present series. This appears to result from depressing the diaphragm farther than normal and also from preventing whatever paradoxical elevation occurs in some patients at full inspiration. In these circumstances, patients will cough up mucus with therapy; otherwise, the advantage of hyperventilation production by this technique will be missed.

INFLUENCE OF EFFECT OF BRONCHODILATOR DRUGS

It has been questioned whether bronchodilator drugs are as efficient when used without as they are when used with intermittent positive pressure breathing. In our experience a much larger dose of nebulized bronchodilator drugs appears to be necessary if intermittent positive pressure breathing is not simultaneously administered. If viscid sputum is a factor, intermittent positive pressure appears to afford more relief than a bronchodilator drug alone. In patients with inefficient cough and uneven ventilation, there is considerable benefit in the long-term application of intermittent positive pressure breathing as a mechanism for clearing away secretions.

Many of the patients in the series found intermittent positive pressure breathing of the greatest use in the morning on arising, when it aided in expectoration of mucus. The relief they obtained from this therapy was greater than they had obtained from bronchodilator drugs alone.

DISCUSSION

Before prescribing intermittent positive pressure breathing for occasional or regular use, a physician must determine whether or not objective improvement is obtainable by this therapy. Also he must determine that it has no deleterious effect, which it may have even though the patient subjectively feels better. If it does have deleterious effect, this should be explained to the patient, so that he does not demand a form of treatment simply because it is new and different. Sometimes even if little or no improvement is noted when positive pressure therapy is tried to find out whether or not it may be useful in a given case, it is worth while to retest the patient at a later date, when he may be less well, to see whether benefit occurs then.

The authors believe that intermittent positive pressure breathing is a useful form of therapy in many respiratory diseases if properly applied in suitably selected patients. Failure often may be owing to failure of the physician or of the patient to understand the reasons for prescribing it. It is probably applicable in many cases in which it is not used and on the other hand is used in cases in which it cannot help. In some cases it may not be sufficient alone, but effective in combination with other forms of therapy.

CONCLUSIONS

Intermittent positive pressure breathing combined with bronchodilator drugs offers much in chronic bronchitis and emphysema, except in cases in which the residual volume of the lungs increases with therapy. In most cases it offers an advantage over the use of bronchodilator drugs alone. These advantages are particularly apparent with regard to clearing of bronchial mucus but extend to some extent to relief of chronic respiratory acidosis. It may also help prevent pulmonary atelectasis. The value of such therapy can best be estimated in terms of the need of the patient for hyperventilation and the effects of such hyperventilation. In many patients hyperventilation is only partially achieved and the gain may be less than anticipated. Although much of the relief obtained by use of intermittent positive pressure breathing for short terms may be ascribed to the concomitant use of bronchodilator drugs, the long term effect is attributable to the forced ventilation.

The applications of intermittent positive pressure breathing go far beyond treatment of chronic bronchitis and emphysema. It is useful where retention of secretions, due either to hypersecretion or inadequate cough or both, is a problem.

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Determining Blood Pressure in Infants

Use of the Flush Technique

ARTHUR J. MOSS, *M.D.*, WILBERT LIEBLING, *M.D.*, WALLACE O. AUSTIN, *M.D.* and FORREST H. ADAMS, *M.D.*, Los Angeles

• The flush technique that recently has come into use is probably the most satisfactory method available for measuring blood pressures in infants and is of great aid in diagnosis of diseases associated with hypertension or hypotension. The method is practical and highly accurate. Readings obtained by this technique are not influenced by the width of the cuff, are usually higher at the wrist than at the ankle, and approximate the mean rather than the systolic blood pressure.

THE WIDE VARIETY of disorders in infancy that may be associated with abnormal deviations of blood pressure suggests that routine determination of pressure in babies may be rewarding. Among conditions commonly associated with a rise in blood pressure are essential hypertension, nephritis, cerebral tumors, renal tumors, renal abscess, cerebral abscess, acrodynia, asphyxia, pneumothorax, coarctation of the aorta, aortic insufficiency, Cushing's syndrome, polycystic kidney, poliomyelitis, syphilis, adrenal tumors, lead poisoning and carbon monoxide poisoning. Hypotension is often observed in hemorrhage, cerebral concussion, surgical shock, cardiac failure, aortic or subaortic stenosis, amyloid disease, hypopituitarism, tuberculosis and Addison's disease. Abnormal variations of pressure in the form of extreme lability have been described in familial dysautonomia.

In the past, omission of blood pressure determinations in infants was largely owing to the inadequacy of the methods available for use in this particular age group. Consequently, attention has recently been focused on the so-called flush technique of measuring blood pressure. This method was introduced in 1952 by two independent groups of observers[3,7] and was apparently conceived from the observations of Gaertner,[5] who in 1899 devised a means of determining the digital blood pressure by employing the flush method on a finger. Using minor modifications, the authors have found the following application of the flush means of measurement to be the most satisfactory. The sphygmomanometer cuff is applied to the wrist or ankle (see Figure 1) and the distal portion of the extremity is compressed by firmly wrapping a wide, soft rubber drain around it, beginning at the tips of the digits and working proximally to the cuff edge. The manometer is then rapidly inflated to 300 mm. of mercury and the elastic wrapping removed. With gradual release of the pressure, a point is reached at which there is a distinct blush of the blanched portion of the extremity. The manometer reading coincident with this end point approximates the mean blood pressure.[10] To obtain the greatest degree of accuracy, certain precautions must be observed. The manometer pressure should be released at a rate not exceeding 5 mm. of mercury per second, and the extremity should be held at about the height of the heart. The procedure must be done with the subject relatively quiet and immobile and with good enough light to see the flushing of the fingers.

In studies reported elsewhere[10] it was found that this method of measurement is a highly reliable one, that the width of the cuff does not affect the reading obtained, that measurements are usually higher in the upper than in the lower extremity, and that the values approximate the mean rather than the systolic blood pressure. In those studies the reliability of the method was appraised by comparing simultaneous measurement of blood pressure obtained by two teams of observers, each team consisting of two members. One hundred infants were studied, and in a correlation analysis of the paired observations of the two teams of observers the Pearson product*

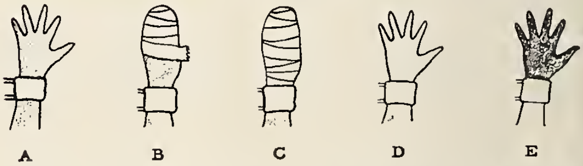

Figure 1.—Blood pressure measurement by the flush technique. The manometric cuff is applied to the extremity (A) and an elastic bandage is wrapped around the distal portion (B and C). The manometer pressure is raised to 300 mm. of mercury and the elastic wrapping quickly removed (D). With gradual deflation of the cuff, the blanched portion flushes (E). The pressure is read at the beginning of the flush.

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*An expression of the degree of relationship between two variables. No relationship is represented by .00; perfect relationship by 1.00.

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Presented before the Section on Pediatrics at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

moment correlation coefficient was 0.87 for the lower extremity and 0.65 for the upper extremity. This indicated a high degree of reliability.

It is a well established fact that auscultatory measurements are influenced by the width of the cuff—the wider the cuff, the lower the reading.[12,15,16] Since the length of vessel compressed by the cuff is directly proportional to the width of the cuff, wider cuffs compress a longer segment of the vessel, and the pulse traveling through it meets with increased frictional resistance resulting in a lower reading. The higher readings when a narrow cuff is used are owing not only to the lessening of friction in the vessel, but also to the fact that relatively more of the pressure in the cuff is dissipated in compressing and displacing the soft tissues. Why these factors do not affect the flush technique is not clear. Probably one reason is that the cuff is applied at the wrist and at the ankle, where the artery lies near the surface and there is little soft tissue to be compressed.

Blood pressure as measured by the flush technique is usually higher at the wrist than at the ankle. The disparity may exceed 30 mm. of mercury. This is directly opposite to the well-established observations that the systolic blood pressure as measured by auscultation is normally higher in the leg than in the arm.[1,2,6,13,14,18] Recognition of this reversal of arm-leg blood pressure relationship as determined by the flush technique is of prime importance when considering the diagnosis of coarctation of the aorta. In its milder forms the presence of this malformation may occasionally be difficult to establish with certainty on the basis of flush blood pressure determinations alone. In eight proved cases of this disease observed by the authors, however, the blood pressure differences were so pronounced in comparison with normal that the diagnosis was never in doubt.

Although it has been generally believed that blood pressure measurements obtained by the flush method represent the systolic blood pressure, there is evidence in the literature that this is not the case. Goldring and Wohltmann[7] noted flush values at the wrist to be lower than auscultatory systolic values over the brachial artery but attached no special significance to their observation. Earlier investigators[4,8,9,10,17] observed that the digital flush pressure was consistently and significantly lower than the brachial auscultatory systolic blood pressure. If the flush method were a measure of the systolic blood pressure, one would not expect the values to be lower at the wrist or finger than systolic readings obtained by auscultation over the brachial artery. Recently reported studies[10] indicated that the blood pressure as determined by the flush method approximates the mean rather than the systolic blood pressure. Comparing the flush reading at the wrist to the brachial auscultatory reading in 50 infants, it was observed that the former approximated the calculated mean blood pressure more closely than it did either the systolic or diastolic pressure. This was further supported by 17 observations made in 15 infants and children in whom flush determinations were compared with direct intraarterial measurements. A statistical test of the differences between the arithmetic means indicated that the flush values correlated more closely with the mean blood pressure as determined by planimetry than with either the direct systolic or diastolic blood pressure.

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Recurrent Varicose Veins

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• Recurrence or persistence of varicose veins after treatment may be charged to incomplete original evaluation of the patients' venous insufficiency and to therapy that was not adequate because not planned on the basis of the particular kind or degree of venous incompetence in each individual case.

The chief factors in the avoidance of failures of treatment are the eradication of all sites of incompetence and of all secondary incompetent venous communicating pathways; and careful follow-up examination and additional treatment when necessary.

PROCEDURES for the eradication of varicose veins are in bad repute in the minds of many unhappy patients who have had recurrence, and of many physicians who are dissatisfied with the ultimate results.

One should be reluctant to guarantee a complete cure to a patient undergoing any definitive treatment of varicose veins. Rather the patient should be given to understand that an attempt is being made to correct a defective venous circulation, and although the desired result may be achieved without difficulty, further treatment may be necessary to forestall or correct reappearance of varices. It should be pointed out that there is an inherent defect in the structure of the superficial veins in persons with a tendency to varices.

On the other hand, recurrence should rarely be encountered if all the abnormal functional changes which produced the varices are properly evaluated. Oftentimes, however, one may not see the woods for the trees. There may be additional abnormalities which lead to varicosities, other than obvious gross incompetence of the greater saphenous system.

What are some of the factors contributing to recurrence?

Reliance on Sclerosing Therapy Alone

Although it is agreed that sclerosing therapy of small localized varices may be successful where there is no incompetence of the major trunks of the superficial system, it is obvious that the latter defect, aided by a rich venous collateral circulation and abetted by recanalization will inevitably lead to further trouble.

Failure to Ligate All Tributary Branches at the Saphenofemoral Junction

If the saphenous vein is ligated low instead of at the saphenofemoral junction, and, if all the tributary veins are not divided and ligated at this level, retrograde flow will reestablish itself through remaining collaterals.

Sometimes a double saphenous vein exists or there may be a lateral femoral cutaneous branch, which may lead to recurrence if the saphenous proper is ligated below the point of origin of trunks or if the tributaries are left communicating with these secondary trunks.

Failure to Ligate Large Labial Branches

Often, during the last trimester of pregnancy, huge, distended, labial varices develop. Ordinarily they diminish to a much less conspicuous size within a month or two postpartum. These labial tributaries may communicate with the greater saphenous trunks and reestablish a backward flow into the saphenous after high ligation.

There is also commonly found a deep pudendal branch which originates from the femoral vein at

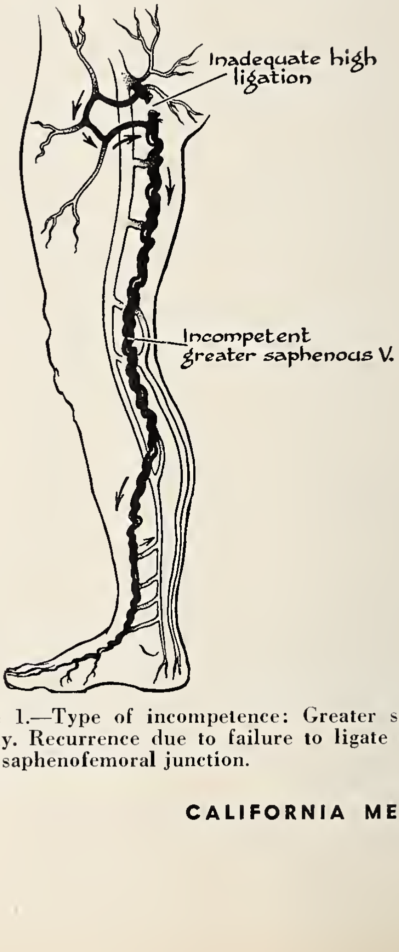

Figure 1.—Type of incompetence: Greater saphenous vein only. Recurrence due to failure to ligate all tributaries at saphenofemoral junction.

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Submitted April 23, 1957.

the saphenofemoral junction or from the saphenous vein. There is a descending branch from this vein which is often responsible for recurrence.

Failure to Treat Incompetent Short Saphenous Vein

Since it communicates freely with the greater saphenous vein, it is obvious that an incompetent short saphenous vein left untreated can be responsible for recurrent distention and dilatation of long saphenous varices when simple high ligation has been done and especially when the greater saphenous trunk has been left in situ.

Incompetent Perforating Veins

Incompetent perforating veins may exist and communicate either with the main saphenous trunks, or may be independent of these and anastomose with minor superficial varices. These incompetent perforators, if not eradicated, may be a source of recurrence when high ligation has been done and the saphenous trunks have been left in situ, or even when the saphenous trunks have been stripped. Incompetent perforators may communicate with secondary superficial veins which are not a part *per se* of the principal saphenous trunk, but are located in a bizarre distribution throughout the leg. These perforators therefore must be looked for before operation, marked well, and ligated individually below the fascia at the time of operation if recurrence is to be avoided.

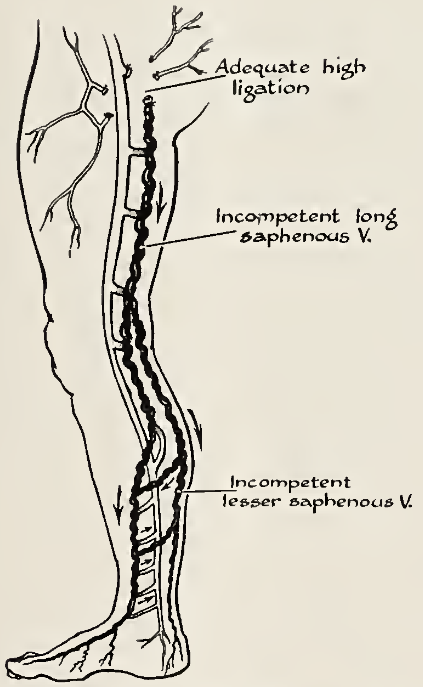
Adequate high ligation
Incompetent long saphenous V.
Incompetent lesser saphenous V.

Figure 2.—Type of incompetence: Greater (long) saphenous vein and of lesser saphenous vein. Recurrence due to failure to interrupt incompetent lesser saphenous which communicates with the greater saphenous.

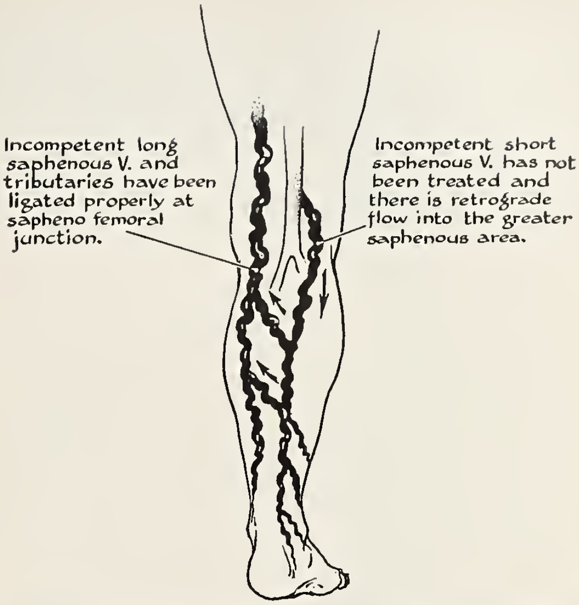
Incompetent long saphenous V. and tributaries have been ligated properly at sapheno femoral junction.
Incompetent short saphenous V. has not been treated and there is retrograde flow into the greater saphenous area.

Figure 3.—Type of incompetence: Greater (long) saphenous and of lesser saphenous. Recurrence due to failure to interrupt incompetent lesser (short) saphenous which communicates with the greater saphenous.

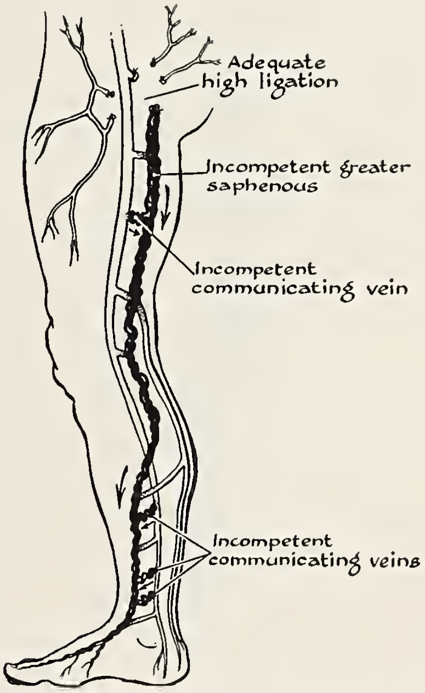
Adequate high ligation
Incompetent greater saphenous
Incompetent communicating vein
Incompetent communicating veins

Figure 4.—Type of incompetence: Greater saphenous vein plus incompetent communicating veins. Recurrence due to failure to eradicate incompetent communicating veins although a proper high saphenous ligation has been done.

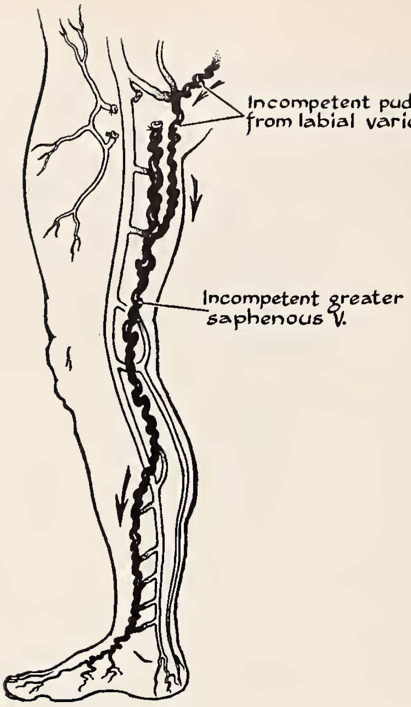
Incompetent pudendal V. from labial varices
Incompetent greater saphenous V.

Figure 5.—Type of incompetence: Greater saphenous and pudendal branch from labia with descending branch communicating with greater saphenous. Recurrence due to failure to ligate the incompetent pudendal branch.

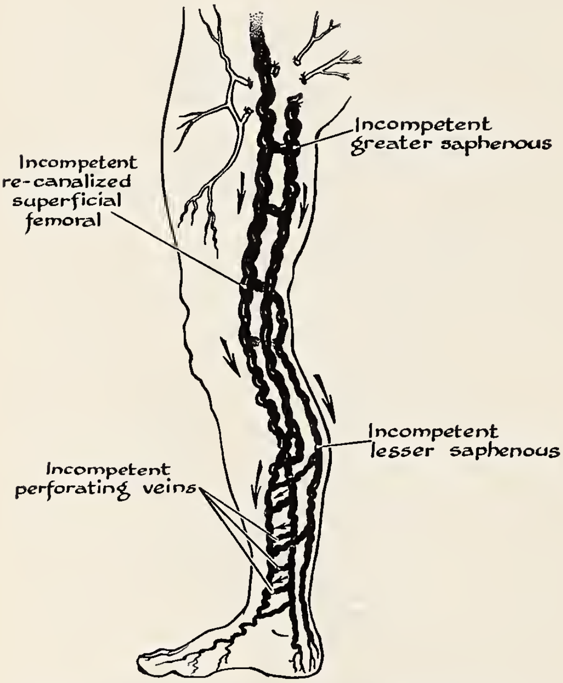
Incompetent greater saphenous
Incompetent re-canalized superficial femoral
Incompetent lesser saphenous
Incompetent perforating veins

Figure 6.—Type of incompetence (postphlebitic): (1) Incompetence of greater saphenous vein; (2) incompetence of lesser saphenous vein; (3) incompetence of recanalized superficial femoral vein; and (4) incompetent perforating veins. Failure due to not eliminating all four abnormalities.

Postphlebitic Varices

Postphlebitic varices pose a somewhat different problem than simple incompetence of the superficial veins, and all the features involved in this syndrome must be taken into account if the incidence of repeated difficulty is to be kept low. Of course, it is necessary to correct superficial incompetence but it should be remembered that the superficial change stems primarily from the incompetence of the recanalized deep veins, causing distention, backward flow and incompetence of the deep communicating veins and, finally, of the superficial system. It is necessary to ligate the superficial femoral or popliteal vein in conjunction with ligation and stripping of the incompetent greater and lesser saphenous systems to achieve the best results; and a "Linton Flap" type subfascial procedure may be required to further eradicate all perforators communicating with the surface veins.

Dealing with only one of the factors mentioned, and ignoring the others, will obviously lead to discouraging results.

Arteriovenous Fistula

The possibility of an overlooked arteriovenous fistula must be considered as a cause of persistent or recurrent varices. The classic signs of arteriovenous fistula may be absent if the fistula is small or if there are multiple small (congenital) arteriovenous fistulous communications.

Failure to Obliterate Residual Varices

If residual varices persist after ligation, or after ligation and stripping, they should be eradicated with sclerosing injections. Failure to observe patients diligently in this regard postoperatively is one of the commonest oversights in treating varicose veins, and is one of the most frequent causes of persistence of varices. Massive retrograde injections at operation, which have been so extensively used, are not as satisfactory and are potentially dangerous.

The most satisfactory management of varicose veins involves stripping when possible, eradicating all incompetence of both long and short saphenous veins and incompetent perforating or deep communicating veins, and interruption of an incompetent, recanalized superficial femoral vein when present.

Patients who have a tendency to varicose veins should change from sedentary or standing occupations. Elastic supports should be used freely, and careful follow-up examinations, with elimination of residual minor varices by sclerosing injections, is essential to a good end result and a happy and satisfied patient.

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CASE REPORTS

Acute Nonspecific Pericarditis

Reports of Two Cases with Elevated Serum Glutamic Oxalacetic Transaminase Activity

ROBERT B. KALMANSOHN, M.D., and
RICHARD W. KALMANSOHN, M.D., Los Angeles

In recent years, there has been renewed interest in the serum concentration of glutamic oxalacetic transaminase activity (SGO-T) in various disease states.[2-6,8] As additional information has been obtained, it has become increasingly apparent that determining the serum activity of this enzyme would be of value chiefly in differentiation between myocardial infarction and closely allied conditions. One of the most difficult problems confronting clinicians is distinguishing between acute myocardial infarction and acute nonspecific pericarditis.[7] The nature of the painful episode may be identical; the leukocyte content and the erythrocyte sedimentation rate may be elevated in both conditions; the electrocardiographic patterns may be similar.[7] The ability to make a definitive diagnosis of acute myocardial infarction or of acute nonspecific pericarditis is of importance not only from a prognostic standpoint but also because anticoagulants, which are commonly used and apparently are helpful in acute myocardial infarction, may cause fatal pericardial tamponade in acute pericarditis.

In four recent reviews on the subject of SGO-T activity, the serum concentration of this enzyme was reported within normal limits in all cases of acute pericarditis.[2,3,5,8] We have recently observed two patients with classical cases of acute nonspecific pericarditis with elevated SGO-T levels. So far as could be determined these are the first cases in which elevated SGO-T levels were noted in patients with acute nonspecific pericarditis, and the observation raises some question as to the usefulness of this test in the differential diagnosis of acute myocardial infarction and acute nonspecific pericarditis.

Case 1. The patient, a 46-year-old man, was well until about 9:30 p.m., July 24, 1956, when he noted the gradual onset of a squeezing pain in the left parasternal area from the second to the sixth interspaces. The pain was constant but was accentuated from the outset by breathing, sneezing, coughing or motion of the body, particularly by lying on the left side. There was no associated increased diaphoresis or dyspnea other than that occasioned by the shallow, splintered respiration. However, the patient said that for about a week before the onset of pain, he had daily chilly sensations associated with nocturnal elevation of body temperature and generalized weakness.

No evidence of cardiac symptoms or of previous involvement of the pericardium was obtained from the history.

The patient was first seen at noon on July 25, 1956. At that time, he was extremely apprehensive and was obviously in respiratory distress. There was no evidence of cervical venous distention. A few subcrepitant rales were audible at both lung bases posteriorally. The left heart border was at the midclavicular line in the fifth interspace. The heart sounds were distant. The aortic second sound was greater than the pulmonic second sound. There was a loud friction rub synchronous with the heart beat with systolic and diastolic components, loudest in the fourth interspace at the left parasternal line. The blood pressure was 120/74 mm. of mercury, without paradoxical pulsation. There was no hepatomegaly or peripheral edema. All the peripheral pulses were palpated. The oral temperature was 101°F. The patient was put in hospital.

Leukocytes numbered 8,500 per mm. of blood, with normal differential of forms. Results of urinalysis were within normal limits. The erythrocyte sedimentation rate (Wintrobe) was 24 mm. in one hour, corrected. The antistreptolysin titer was 100 Todd units.

Serum transaminase levels, determined by the Karmen method,[4] were 42 units on July 25, 75 units on July 26, and 40 units on July 27 (normal range, under 40 units). Electrocardiographic tracings were typical of acute pericarditis—decidedly elevated RS-T segments with an upward concavity in leads I, II, AVI, and V3 to V6, and absence of reciprocal changes. No abnormalities were seen in an x-ray film of the chest.

The oral temperature rose to 101°F the first two days, subsequently was normal. The pain disappeared in three days. Pericardial friction rub persisted for two days. Results of cephalin cholesterol

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From the Department of Medicine, School of Medicine, University of California Medical Center, Los Angeles 24, and Department of Medicine, Mt. Sinai Hospital, Los Angeles.

Presented before the Section on Internal Medicine at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

flocculation, thymol turbidity, and serum amylase tests were within normal limits. The patient was discharged from the hospital on the eighth hospital day, afebrile, symptom-free and with only minimal residual elevation of the RS-T segments, and with a normal arm-to-tongue circulation time (15 seconds, Decholin®).

CASE 2. The patient, a 46-year-old man, was well until August 1, 1956, when he awakened from sleep with left precordial pain. Sharp in nature, the pain was accentuated by inspiring, coughing, changing position, leaning over; it was alleviated by sitting up.

When first seen on August 2, 1956, the patient was in only mild distress. There was no cervical venous distention. Inspiratory subcrepitant rales were audible at both lung bases posteriorally. No abnormalities were noted on examination of the heart. The blood pressure was 130/70 mm. of mercury without paradoxical pulsation.

At the time of admittance to hospital, leukocytes numbered 7,200 per cu. mm. of blood, with a normal differential of cells. Serum transaminase levels (Karmen method) were 16 units on August 2, 52 units on August 3, 38 units on August 7 and 21 units on August 8. Electrocardiographic tracings showed a classical evolution of acute pericarditis. X-ray films of the chest showed bilateral pneumonitis with minimal cardiac enlargement. These abnormalities subsequently disappeared. The patient was discharged from the hospital on August 11, 1956, symptom-free, afebrile, with a normal arm-to-tongue circulation time and with minimal residual RS-T segment elevations.

DISCUSSION

There can be little doubt that the patients in the cases herein reported had acute nonspecific pericarditis, as shown by the relation of the pain to respiration, coughing, sneezing and bodily movement; as shown by the early onset and persistence of the pericardial friction rub in the first patient without anticoagulant therapy; and as shown by the prodromal period of chills and fever, and the presence of almost universal elevation of RS-T segments, without the presence of Q waves or receding R waves and with the concave portion of the elevated RS-T segments being directed upward. In the absence of liver disease, pancreatic disease or evidence of occlusion of any visceral vessels, it is logical to suppose that the elevated SGO-T activity originated from subepicardial myocarditis due to the associated contiguous pericarditis. That this reasoning is probably sound is attested by the fact that the RS-T segment elevations seen in pericarditis are attributed to subepicardial myocarditis.

It is therefore reasonable to assume that the SGO-T activity may arise in acute pericarditis if a sufficiently large area of myocardium is involved.[1] That elevated levels of this enzyme have not been noted heretofore in acute pericarditis may be due to the fact that the pericarditis in other reported cases was more localized or that serial determinations were not done or were done too late.

Regardless of which explanation may pertain in the individual case, the fact that SGO-T levels may rise in acute nonspecific pericarditis should make one hesitant in our present state of knowledge to differentiate acute myocardial infarction from acute nonspecific pericarditis by abnormal elevations of SGO-T activity.

It may well be true that as more knowledge of SGO-T activity in acute pericarditis evolves, a quantitative distinction will be found in serum transaminase levels between myocardial infarction and pericarditis.

SUMMARY

The observation of elevated serum glutamic oxalacetic transaminase levels in two cases of acute nonspecific pericarditis casts doubt upon the value of SGO-T determinations as a means of distinguishing between that condition and acute myocardial infarction.

1134 South Robertson Boulevard, Los Angeles 35.

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California
MEDICINE

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EDITORIAL

Mental Health Services

Provision for establishing mental health services for the people of California in their own county areas was made by the 1957 State Legislature. The program will go into effect this fall and is expected to redound to the benefit of all the people, whether they be patients or taxpayers.

Passage of this legislation followed two years of extremely active campaigning by many organizations and individuals interested in the mental health of the state. In 1955 some of these interests presented a bill to the State Legislature to set up a system of community mental health facilities. The California Medical Association opposed this measure at that time, for sound reasons which some of the more vociferous proponents of the bill either overlooked or failed to understand. With the present measure about to go into effect, the position of the C.M.A. should be made clear.

In the 1955 measure it was proposed that mental health centers be established, on a county option basis, in all counties with more than a specified minimum population, the county and the state to share in all costs. These centers would have been directed by boards of local residents, appointed locally but subject to approval by the State Department of Mental Hygiene. In other sections as well, the bill provided for supervision by the state of activities which were presumably to be under local control.

It was this bill that the C.M.A. opposed, successfully. C.M.A.'s opposition was based on the fact that there appeared to be too much state control under the measure—that whereas the legislation had been presented to a great many groups and organizations throughout the state as a "home town" program, it became, through numerous provisions in the bill itself, a state mental hygiene measure in which the local interest would seem to be lost.

On top of that, there appeared to be in the 1955 bill the possibility of diverting funds appropriated for the care of the mentally ill into building programs to house the therapeutic activities. There was also a question of the possible staffing of such facilities in light of a shortage of qualified psychiatrists in our state institutions. The alternative to such staffing seemed to be the use of psychologists and psychiatric social workers. If that pattern had been followed, one of medicine's prime objectives in treating the mentally ill would have been lost—namely, the treating of the whole body of a mentally ill person. While psychologists and psychiatric social workers are fully recognized as having a place in the field of psychiatric treatment, medicine holds that only the scientific training of the physician is adequate to cope with the multitudinous facets of mental illness, many of which are expressed in physical terms.

While the C.M.A. took the unpopular public position of opposing the 1955 legislation, and thus incurred the wrath of many well-meaning people, it proposed to the State Legislature that the problem be given further study; it also promised to investigate the entire problem on its own and to come up with a proposal which would meet the need for community mental health services and protect both the communities involved and the scientific approach to the problem.

Such a proposal was evolved by the C.M.A. Committee on Mental Health, working with legal counsel and legislative representatives. This program was embodied in Senate Bills 244 and 245 of the 1957 State Legislature, both of which were passed by the Legislature and signed by the governor. Both bills found practically unanimous approval among the mental health societies and other interested organizations in California. Some amendments were agreed upon, within the framework of the original proposal, none of which would change the primary intent of the legislation.

Under the terms of the new laws, mental health services may be established in a county, with the state sharing the cost, where such services are set up and operated in conjunction with general hospitals. This requirement recognizes mental illness as a disease which should be treated as bodily illnesses are treated, in hospitals where recognized medical staffs are available.

County option will still prevail. There is no requirement that a county must establish these services, but if it chooses to do so, the state will share the cost with the county.

Underlying the entire philosophy of this program is the recognition by all concerned that many mental illnesses do not require custodial confinement but may be adequately treated in the patient's own community. Where such treatment is effective, the patient is saved the tribulations of confinement in a state institution and the state is saved the expense of building, staffing and maintaining large mental hospitals.

With the interest shown by so many organizations in the subject of mental health in the past two years, it is obvious that many counties will undertake this program and, on their own initiative, proceed to handle as much of the mental health case load at home as is possible. Medicine has a great stake in this program, in demonstrating the value of early and local treatment of many mental illnesses. Success of the program would doubtless spell an end to an ever-growing state program of mental hospital construction and operation, with its attendant centralization of authority and increase of costs.

Medical societies throughout California will be called upon to cooperate and to participate in these local programs and the profession has indicated every evidence of being ready to take its proper part. With the expressed interest of so many people, the community mental health program seems to be getting off to a fine start, with every prospect of success.

You and Your Mail

PHYSICIANS AS A CLASS plead guilty readily, almost enthusiastically, to being poor correspondents. In their busy offices they find little time to keep up with the daily mail, even to the extent of glancing through it to find out what it may contain.

In these circumstances, many physicians turn over to their secretaries the task of opening and classifying the daily mail. And many secretaries, in turn, take pride in winnowing out everything that doesn't look important on the surface. This saves the physician's time.

Admittedly, physicians receive a lot of mail they don't want. Their names appear on many commercial mailing lists which open them up to solicitation for any number of products, merchandise or philanthropic causes. They receive drug samples without number, reprints of scientific articles in which they have no interest, advertising material and other pamphlets which end up in the wastebasket. This is par for the course.

Physicians also receive communications from their medical societies from time to time. Each society strives to keep its mailings to a minimum, both as a means of saving wear and tear on its members and of saving costs, but some mailings are inevitable.

The California Medical Association follows this policy and its mailings to its membership are kept to a bare minimum at all times. It does send out a monthly journal; it announces postgraduate training courses open to C.M.A. members; it sends *Newsletter*, a concise report on items of general interest in the field of better public relations for physicians; and from time to time it sends out up-to-date information on Medicare and on industrial medical and surgical fees.

Unfortunately, some office secretaries seem to regard anything bearing the C.M.A. name as just so much more advertising. Witness the girl (there are quite a few like her) who threw away, unopened, an envelope from the C.M.A. containing a check to reimburse her employer for expenses incurred in attending an official committee meeting. Or the secretary who disposed of a new industrial fee schedule and, thirty days later, wondered why her billings to employers and insurance carriers were snafu. These are but two of many examples.

During the next thirty days or so the C.M.A. will send out a new industrial fee schedule. It will also mail to all members new information on the Medicare program and fees. There may be additional mailings as well.

Since it costs about $1,200 to make a simple letter mailing to all C.M.A. members, the Association does not undertake mailings lightly. When information which should be widely disseminated comes to hand, it is the Association's duty to communicate with its members and keep them advised.

When you see a C.M.A. envelope in your mail, you may count upon its containing something of value to the entire statewide membership. Your discrimination is urged when such missives drop through your mail slot.

Secretaries, please read.

California MEDICAL ASSOCIATION

NOTICES & REPORTS

Council Meeting Minutes

Tentative Draft: Minutes of the 426th Meeting of the Council, Mark Hopkins Hotel, San Francisco, July 13, 1957.

The meeting was called to order by Chairman Lum in the Argonaut Room of the Mark Hopkins Hotel, San Francisco, on Saturday, July 13, 1957, at 9:30 a.m.

Roll Call:

Present were President MacDonald, President-Elect West, Secretary Daniels, Editor Wilbur, Speaker Doyle, Vice-Speaker O'Neill, and Councilors MacLaggan, Wheeler, Foster, Pearman, Harrington, McPharlin, Sherman, Lum, Bostick, Teall, Kirchner, Reynolds, Varden, Heron and Rosenow.

Absent for cause: Councilors Carey and Wadsworth.

A quorum present and acting.

Present by invitation were Messrs. Hunton, Thomas, Clancy and Gillette of C.M.A. staff; Messrs. Hassard and Huber of legal counsel; Messrs. Read and Salisbury of the Public Health League of California; county society executive secretaries and assistants Geisert of Kern, Dochterman of Alameda-Contra Costa, Young and Pettis of Los Angeles, Bannister of Orange, Marvin of Riverside, Foster of Sacramento, Donmyer of San Bernardino, Nute of San Diego, Neick of San Francisco, Donovan and Colvin of Santa Clara, and Pearce of San Joaquin; Doctors J. L. Ludwig, Francis J. Cox, Walter E. Batchelder, Lewis T. Bullock, Malcolm Merrill, Wilbur Bailey and others; Doctor Jay Ward Smith, associate dean of Stanford Medical School; Doctor William Gardenier and Messrs. K. L. Hamman, Richard Lyon and Wilson Wahlberg of California Physicians' Service; Mr. Fred O. Field, legal counsel of the Los Angeles County Medical Association; Messrs. Herbage and Moller of the State Department of Social Welfare, and several physician members of committees meeting simultaneously.

Postgraduate Education Courses for 1958 Annual Session

An innovation in C.M.A. meetings is being planned for the 1958 Annual Session. It is proposed to offer three postgraduate education courses of 12 hours each in connection with the scientific meetings. It is expected that official credit would be given for these courses.

As now planned, each of the three medical schools in Southern California would put on a course of three hours daily for the four days of the meeting.

Present plans call for University of Southern California to handle a course on liver diseases. U.C.L.A. Medical School would present a course on abdominal pain and College of Medical Evangelists would take charge of a series on management of trauma.

It is planned to make an admission charge for these courses, although the full details remain to be worked out.

Further announcements will be made when plans are completed.

1. *Minutes for Approval:*

(a) On motion duly made and seconded, minutes of the 424th Council meeting, held April 27 to May 1, 1957, were approved.

FRANK A. MacDONALD, M.D. . . . . . . President
FRANCIS E. WEST, M.D. . . . . . . President-Elect
JAMES C. DOYLE, M.D. . . . . Speaker
J. NORMAN O'NEILL, M.D. . . . . Vice-Speaker
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(b) On motion duly made and seconded, minutes of the 425th Council meeting, held May 1, 1957, were approved.

(c) On motion duly made and seconded, minutes of the 264th Executive Committee meeting, held May 1, 1957, were approved.

(d) Approval was also moved, seconded, and voted for a report on a telephone conference by the Executive Committee on June 6, 1957, for the purpose of naming special committees.

2. *Membership:*

(a) A report of membership as of July 12, 1957, was presented and ordered filed.

(b) On motion duly made and seconded, 409 delinquent members whose dues had been received since the May 1 Council meeting were voted reinstatement.

(c) On motion duly made and seconded in each instance, three applicants were voted Retired Membership. These were: Mark Mizener, Los Angeles County; Charles J. Clock, San Bernardino County, and J. A. Wallace, San Bernardino County.

(d) On motion duly made and seconded in each instance, 18 applicants were voted Associate Membership. These were: Julian P. Adamson, Alan Foord, Elvira Goettsch, Alameda-Contra Costa County; Carl P. Dahlen, Aram Glorig, Virgil Hanson, Donald W. Leik, Curtis Edward Miller, Los Angeles County; Edward A. Miller, Clarence C. Myers, San Diego County; Thomas E. Elbers, Ralph W. Weilerstein, San Francisco County; Arthur F. James, San Luis Obispo County; Elizabeth Corbett, Robert Cragin, Kenneth C. Hayes, Santa Clara County; Paul C. Turner, Solano County; John T. Wallace, Yolo County.

(e) On motion duly made and seconded, reductions of dues were voted for 23 members for reasons of prolonged illness or postgraduate study.

3. *Financial:*

(a) A report of bank balances as of July 12, 1957, was presented and ordered filed.

(b) Chairman Heron of the Auditing Committee reported that a repayment of $5,000 plus interest had been made by the Central California Blood Bank on loans advanced to it.

(c) On motion duly made and seconded, approval was voted for a statement of $6,000 for extraordinary legal services.

(d) Mr. Hunton reported that certified public accountants were currently engaged in their annual audit of the Association's books and that the fiscal year audited report would soon be forthcoming.

(e) Councilor Sherman reminded the Council of an action taken two years earlier under which the Association would assume certain expenses in connection with the Annual Session of the American Medical Association in San Francisco in 1958.

4. *Industrial Medical Fees:*

Doctor Francis J. Cox reported that the Industrial Accident Commission of the State of California had adopted an order providing increased fees for certain procedures in industrial accident cases (primarily office and hospital visits) and that the new fees would be in effect on October 1, 1957.

5. *Public Welfare Law:*

Doctor Francis J. Cox reported that the Committee on Fees had discussed the basis for fee recommendations to apply in public welfare assistance cases under terms of Assembly Bill 679 as adopted by the 1957 State Legislature. The committee felt, he stated, that the basis of negotiations with any governmental agency should be the same as for all such agencies.

After considerable discussion, it was regularly moved, seconded and voted that the matter of public assistance medical care program be considered as an individual matter and not in concert with any other program.

On motion duly made and seconded it was voted that the Council, in the light of the unknown incidence of care under the new public assistance law and the economic status of assistance recipients, authorizes its advisory committee to suggest a reduced factor under the relative value studies.

6. *Aid to Needy Children:*

Doctor Donald C. Harrington, chairman of the Advisory Committee, reported that the principal need for children under the public assistance law was for dental care. His committee was authorized to defer to the dental association for the major portion of this program, except for emergency medical calls.

7. *Rehabilitation of the Physically Handicapped:*

Doctor Cox urged the members of the Council to have the county medical societies in their areas take a greater interest in the problems of rehabilitation of the physically handicapped. He also asked that suitable representatives be chosen to represent the profession at the forthcoming Governor's Conference on Rehabilitation, scheduled for the coming fall.

8. *Union Health and Welfare Funds:*

Doctor Heron, chairman of the Executive Committee, submitted a statement proposed as a reply to several health and welfare fund trustees who had asked the cooperation of the Association. On motion duly made and seconded, the statement, as amended, was approved.

9. *Medicare:*

Doctor J. L. Ludwig reported that the Medicare contract with the Department of Defense had been extended to February 28, 1958, prior to which time negotiations for a formal contract renewal will be held. He also reported that several fees in the present contract would be reviewed during the period of contract extension. The report was voted approval and it was regularly moved, seconded and voted to refer to the Committee on Government-Financed Medical Care Programs the question of working toward minimum fees in the renewed contract for this program.

10. *Association Activities:*

Following rising from executive session, it was regularly moved, seconded and voted that a firm of business analysts be retained by the Executive Committee to review the organizational setup of the Association in contemplation of increased activities.

11. *Medical Review and Advisory Board:*

Chairman Lum read to the Council a progress report submitted by Doctor Joseph F. Sadusk, Jr., chairman of the Medical Review and Advisory Board. On motion duly made and seconded, it was voted that the Council Chairman consult with Doctor Sadusk and ask for an outline of the board's plans for presentation at the next meeting of the Executive Committee.

12. *California Physicians' Service:*

Doctor T. Eric Reynolds, Councilor and President of California Physicians' Service, presented a progress report on C.P.S. activities and its current membership status.

13. *State Department of Public Health:*

Doctor Malcolm Merrill, State Director of Public Health, reported that the incidence of poliomyelitis this year is about one-half that of the 1956 season. Vaccine is on order for the entire state program but has not yet been completely delivered.

Relative to the Asian influenza, Doctor Merrill reported that some increase has been noted in upper respiratory illness and that the Far Eastern strain of Type A influenza virus has been isolated in California cases. The department is not now recommending vaccination or any changes in vacation plans.

Doctor Merrill also reported that the alcoholic rehabilitation program, under terms of new legislation, will become a part of the Department of Public Health on September 7, 1957. Legislation to provide vaccination of dogs in areas declared to be rabies epidemic will also go into effect on that date.

14. *Commission and Committee Members:*

Doctor Rosenow, who was chairman of a nominating committee for commission and committee members at the 1957 Annual Session, asked that Doctors Edward M. Butt and David A. Wood be named as members of the Cancer Commission and Doctors Leon P. Fox, Dominic DeSanto and Carlton L. Ould be named as members of the Advisory Committee. He also suggested that Doctor Walter A. Macpherson be named chairman of the Committee on Medical Education and Hospitals and be placed on the Commission on Medical Education. For the new Committee on Rehabilitation, he nominated Doctors Francis M. McKeever as chairman and Carleton Mathewson, Elizabeth Austin, Claude P. Calloway and Gordon Williams as members. On motion duly made and seconded, these appointments were approved.

15. *Committee on Postgraduate Activities:*

Doctor Rosenow reported that a pharmaceutical firm was interested in meeting the cost of publishing and distributing the Medical Dates Bulletin of the Committee on Postgraduate Activities and would not run any product advertising in the bulletin. It was regularly moved, seconded and voted to approve this offer. Approval was also voted to raise the institute registration fee from $15 to $20 and the circuit course fees from $15 and $25 for four or eight sessions to $20 and $30, respectively.

16. *Committee on Scientific Work:*

Doctor Albert C. Daniels, chairman of the Committee on Scientific Work, reported that the committee had discussed the possibility of making postgraduate courses a part of the Annual Session program and that the medical schools consulted had been encouraging. He also reported that the committee had voted to hold the 1959 Annual Session in February and that accommodations would be available at that time. On motion duly made and seconded it was voted to approve this change of date.

17. *President's Report:*

President MacDonald submitted several communications which had been sent to him. A request from the California Psychological Association for a committee to work with that organization was ordered referred to the Committee on Mental Health. Doctor MacDonald's proposed reply to the State Director of Mental Hygiene, including a statement relative to proposed new community mental health centers, was approved.

Doctor MacDonald also urged that important items to be placed before the Council or House of Delegates be circulated in adequate time before meetings so that voting members could study such items.

18. *California Medicine:*

Editor Wilbur recommended that Doctor Herman Allington be appointed to the Editorial Board on dermatology, to succeed Doctor Harry J. Templeton, who has resigned because of ill health. On motion duly made and seconded, it was voted to accept Doctor Templeton's resignation with regret and to name Doctor Allington to succeed him.

A proposal that one complete issue of the journal be devoted to legal matters was ordered referred to the Editor and legal counsel.

19. *Resolutions Referred by House of Delegates:*

The Council considered several resolutions which had been referred by the House of Delegates. On resolutions No. 8, 38 and 40 it was pointed out that no action was needed because of actions taken by the State Legislature. Instructions were given the executive secretary on the disposition of several other resolutions not referred to the Council but calling for specific actions.

20. *American Medical Association Committee:*

On motion duly made and seconded, it was voted to invite to California a special committee of the American Medical Association which is investigating various medical care plans.

Adjournment:

There being no further business to come before it, the meeting was adjourned at 5:50 p.m.

DONALD D. LUM, M.D., *Chairman*
ALBERT C. DANIELS, M.D., *Secretary*

Fees for Union Health and Welfare Plans

EDITOR'S NOTE: Several months ago an insurance consultant to several trusts handling union health and welfare programs approached the California Medical Association with the proposition that the Association develop a schedule of indemnity payments under health insurance contracts which the physicians of California would accept as payment in full for their services. The Executive Committee later met with this consultant and with trustees, administrators and attorneys for several of these trusts. The trustees represented both employer and employee interests. The statement below resulted from that meeting. It was prepared by the Executive Committee and, after discussion and amendment, adopted by the Council of the Association.

This is the first time the C.M.A. has gone publicly on record on some of the items included in the statement. It will be seen that the interests of the county medical societies and their individual members have been safeguarded by the Association. At the same time, the impossibility of converting indemnities of dollars into units of service is clearly demonstrated.

To All Trustees of Union Health and Welfare Plans for the Construction Industry of Northern California

Gentlemen:

As evidence of our willingness to cooperate in the solution of problems revolving around the delivery of medical care, the Executive Committee of the California Medical Association met with you, the Trustees of Health and Welfare Plans for the Construction Industry of Northern California, on April 10 of this year.

As an outgrowth of that meeting we are, herewith, presenting the C.M.A.'s views; our attitude based upon the fundamental principle that the patients' interest must remain uppermost in the minds of the discussants on both sides of the table at all times.

The California Medical Association is a voluntary association of Doctors of Medicine in California. Membership in the C.M.A. is not a prerequisite to the right to practice in this state.

An understanding of fundamental principles, avenues of approach to your specific problems, limitation of authority of C.M.A. over individual members and its policies should first be understood and outlined.

Principles:

1. C.M.A. believes in the principle of free choice of physician.

2. C.M.A. recognizes the right of any individual or any group of individuals to select the type of medical care insurance program desired. Everyone is entitled to his free choice of medical care plans.

3. C.M.A. stands and has always stood unalterably in favor of the provision by physicians of a high quality of medical care to patients; individual patients and those who are members of plans.

4. C.M.A. is completely in accord with the principle that fees for services performed by physicians must be reasonable and related to the services performed and *not* to the amount or type of insurance available to the patients. C.M.A. recognizes there will be variations in fees because of geographical differences, varying degrees of training, skill, specialization and experience of physicians; differing conditions encountered in treating individual patients—usual versus unusual cases.

The above principles represent tenets arrived at over C.M.A.'s many years of continued effort to protect and safeguard the welfare of all patients.

C.M.A., guided by its democratically conceived organizational structure and its basic concepts as a voluntary association, cannot commit its individual members to comply with the regimentation suggested as the solution to your present problem. It should be understood that:

1. The Association has no authority whatsoever to dictate to its members what fees they must accept for any particular service, whether it be service provided for an individual, a group, a trust fund; even for our own California Physicians' Service. Likewise, C.M.A. cannot direct nor does it desire to force its members to perform any services under fixed or arbitrary schedules of compensation.

2. C.M.A. is unwilling to recommend to or urge upon its membership a service plan with a mandatory fee schedule except in cases of inadequate income.

3. C.M.A. cannot make an agreement with any party, private or governmental, to the effect that its members will accept a predetermined schedule of fees as complete payment for services rendered. C.M.A. can recommend. C.M.A. cannot enforce. For example, the contract between the Department of the Army and C.M.A. implementing the provisions of Public Law 569 (Medicare) states that ". . . the Medical Association shall encourage physicians in the State of California to provide medical service for dependents of service personnel . . . a physician shall have the right to decline to participate under this program or to refuse any individual case without stating a reason therefor . . ."

C.M.A. can and it willingly offers those services which are within its proper functions as a voluntary medical organization.

1. C.M.A. offers for the serious consideration of your trust funds our widely accepted Relative Value studies which were developed after several years of careful analysis of medical services and surgical procedures. On the basis of your own experiences and statistical studies, it is our sincere belief that the application of these medical and surgical related values will help you to arrive at and establish a realistically integrated medical care program.

2. C.M.A. offers its professional assistance to your trusts in reviewing your payment schedules in accordance with relative values.

3. C.M.A. will continue to expand and emphasize (there are approximately four new physicians entering the practice of medicine each day in California) its program of urging physicians and patients to discuss *in advance* the prospective costs of surgical or other procedures. C.M.A. will cooperate with you to educate your beneficiaries on this phase of your problem.

4. C.M.A. can and will urge its county medical societies to make their public service committees available to all trust fund administrators for the review of fees which appear to the administrators to be questionable. Such reviews, from our past experience, will result in (a) the satisfactory adjustment of fees in relation to services performed, or (b) give assurance to the trust fund administrator that, based upon impartial, professional analysis, the fees are justifiable.

In review, C.M.A. is aware of the problems and the responsibilities you have undertaken in selecting various forms of medical care insurance available on today's spiraling market; today's economy. We know that each plan offers advantages and disadvantages peculiar to its own operation and management.

Your desire to obtain complete coverage for your members is quite understandable. However, your problem, the provision of medical and surgical services to a great number of people is not new. Though C.M.A. has been studying it for the past 40 years, we will be the first to admit that we do not yet have all the positive answers.

We believe that cooperation between trustees and C.M.A. is highly desirable. We freely offer you this cooperation in the sincere belief that it will bring about a better understanding of mutual problems.

Our Executive Committee has been instructed to continue further discussion with you and to develop the proposals herein stated and any additional points disclosed. We are most sincere in our desire to work with you in the problems presented. We are positive that if we can continue our discussions in this atmosphere, we will mutually be assured of progress.

(Statement approved by the Council of the California Medical Association, July 13, 1957.)

The California Tumor Registry

A Summary Report on the Cancer Experience in 36 Hospitals

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• The California Tumor Registry was started in 1947. It consists of case abstracts of medical records on neoplasm patients seen in 40 hospitals in California and now contains data on more than 159,000 cases, with 15,000 new cases being added each year. Follow-up reports are requested annually on each case not known to be dead.

The Registry is designed to (1) promote the continuing care of the patient, (2) to evaluate cancer control methods, (3) to advance knowledge of the epidemiology of cancer, and (4) to suggest leads for laboratory and clinical research.

From a series of 110,628 neoplasm cases reported to the California Tumor Registry in 1942-1954, data are presented on 76,499 cancer cases initially diagnosed in reporting hospitals. Histopathologic confirmation, age, sex, stage, treatment, follow-up, and survival of cancer patients are discussed. Use of the Registry information for analyzing cancer experience for epidemiological study and for evaluation of treatment methods are also described.

The report is intended to illustrate the types of data that can be obtained from the California Tumor Registry. More comprehensive reports on specific aspects of cancer control will be forthcoming.

IN 1947 THE GROWING INTEREST in cancer in California led to the development of a central tumor registry in the State Department of Public Health. From its inception, the Registry has had the support of the Cancer Commission of the California Medical Association, the California Hospital Association, and the California Association of Medical Record Librarians. In accordance with a recommendation of the American College of Surgeons, and upon request of the State Director of Public Health, the California Medical Association established a formal Tumor Registry Advisory Committee in March 1956.

This report describes the purposes, organization and functions of the California Tumor Registry and presents brief excerpts of its findings.

PURPOSES OF THE CALIFORNIA TUMOR REGISTRY

Prior to the establishment of the California Tumor Registry, the data available on cancer in California were confined to mortality information and morbidity studies of special groups of patients, usually of a single hospital,[2] and the surveys made by the National Cancer Institute in the San Francisco Bay Area[1] in 1937 and 1947. Mortality data do not adequately describe the pattern of morbidity since successfully treated cases of cancer are not reflected in mortality figures. A central purpose of establishing the Registry was to provide more general data on cancer morbidity in California.

This body of information provides a means of studying the survival experience of cancer patients in the average general hospital and of evaluating the progress made in bringing the disease under control. Such survival information has not been available, particularly for nonteaching hospitals. It is needed for evaluation of individual hospital experience as well as for study of general trends. Data on the number and characteristics of persons afflicted with cancer are essential to evaluate cancer control methods, to advance knowledge of the epidemiology of cancer, to suggest leads for laboratory and clinical research, and to provide facts for professional and lay education.

In addition to providing statistical information, the Registry performs the basic function of benefiting the cancer patient by providing an effective system of follow-up, and thus aiding continuity of medical supervision.

METHOD OF OPERATION

The California Tumor Registry is a cooperative undertaking of a group of California hospitals and the State Department of Public Health, and is maintained on an entirely voluntary basis. In agreeing to participate, a hospital contracts to report every admission—inpatient or outpatient, public or private —with a diagnosis of reportable neoplasm; and to follow these cases until death.

The program originated as a pilot study in 1947 with three county hospitals and six private hospitals participating. Medical records of neoplasm cases with hospital discharge dates beginning January 1, 1942 were abstracted to establish a backlog of experience. From time to time other hospitals requested entry to the Registry. As of January 1957, 40 hospitals,* representing about one-third of the beds in general hospitals in California, reported 159,000

Submitted June 17, 1957.

*Of these 25 are private, 12 are county, one is a large tumor clinic, one a state hospital, and one participant is a private pathologist.

cases of neoplastic disease. Approximately 15,000 new cases are now being added each year.

Each hospital maintains its own tumor registry. The registry worker in the hospital abstracts onto a standard abstract form the identifying, diagnostic, and treatment information from medical records of neoplasm cases seen in the institution. The information on this initial report form summarizes the data on the patient during the period of first admission to the reporting hospital for the reportable condition, and also during the three-month period following discharge in order to obtain any additional diagnostic and treatment data that may be available. One copy of the abstract remains in the hospital tumor registry; another is forwarded to and becomes a part of the California Tumor Registry.

The hospital follows each registered case at least annually. The Central Registry requests the hospital for a summary of the follow-up information, whether alive or dead, with or without the neoplasm present, on each case reported from that hospital. These requests for follow-up data are sent to the hospital during the patient's anniversary month of admission, which helps maintain an even work-load of abstracting and follow-up work in the local registry.

The Central Registry maintains close personal contact with the hospital registry workers. Statistical consultants in the central office advise the registry workers in each hospital on methods for completing the initial abstract and follow-up forms in order to insure uniformity of records. Upon receipt of the records in the central office, they are carefully edited for completeness and consistency, indexed, and then coded according to a classification agreed upon by the central and local registries. The Cancer Consultant of the State Department of Public Health guides the coding unit in the proper interpretation of the medical information contained in the tumor records. Thus the recorded information is uniformly interpreted regardless of what hospital the record comes from. Identifying, diagnostic, treatment, and follow-up information on each case is recorded on one tabulating card, which is used for statistical purposes and for initiating follow-up each year.

The California Tumor Registry is basically a hospital operation with the State Department of Public Health providing certain services such as records, consultation, workshops for hospital registry personnel, processing services, death clearance, statistical reports, and financial support. The California Tumor Registry also assists hospitals, both participating and nonparticipating, in the organization of a registry and in training registry workers. Two manuals, the *Guides to the Organization and Use of Tumor Registry Records* and the *Tumor Registry Handbook*, have been written, based on the experiences of the California Tumor Registry with member hospital registries, and issued to many hospitals. The "Guides" outlines in detail a simple and efficient registry system that will facilitate abstracting, follow-up, and preparation of statistical reports. The "Handbook" describes a method for abstracting clinical material onto the abstract and follow-up forms and defines the terms used.

Since 1954, 78 additional hospitals have requested assistance and participation in the California Tumor Registry. They cannot become a part of the Registry at present because of budget limitations.

DESCRIPTION OF REGISTERED CASES

Cases Included in This Series

The data to be presented in this report pertain to cases admitted to 36 hospitals through 1954. There is an unduplicated count of 110,628 neoplasm cases in this series—104,430 malignant and 6,198 potentially malignant neoplasms. The following analysis is restricted to 76,499 cases with malignant neoplasms that were initially diagnosed in hospitals reporting to the California Tumor Registry; the remaining cases had been diagnosed elsewhere prior to admission to the reporting hospital, or this point was not clear from the records.

Approximately 80 per cent of the cases came from 19 hospitals which reported for the entire period 1942-1954; about 20 per cent from 17 hospitals which reported for only part of these years.

A study was made comparing the mortality pattern of the Tumor Registry cases with that of the entire state. The type, size, and geographic location of the hospitals in the Registry were also compared with the distribution of all hospitals. The study showed that the distribution of deaths by site and the hospitals in the Registry were generally representative of the state. It should be noted, however, that since certain sites of cancer, notably skin, may be diagnosed and treated to a considerable extent outside of hospitals, these data underestimate the frequency of such sites.

Histopathologic Confirmation

Microscopic examination is the decisive factor in the diagnosis of cancer. Not only the fact of malignancy but the type of neoplasm and grade of growth may best be determined by microscopic examination of a portion of the suspected tumor. Histopathology often has been used to guide the kind and extent of treatment which is given.

The proportion of diagnoses confirmed by histopathology roughly indicates the accuracy of diagnosis in a group of cancer cases. Confirmation by histopathologic examination ought to approach

TABLE 1.—*Registered Cancer Cases Confirmed by Histopathology by Year of First Diagnosis, 1942-1954*

Year of First Diagnosis	Total Cases	Confirmed by Histopathology Number	Per Cent
Total	76,499	66,923	87.5
1942	3,463	2,769	80.0
1943	3,375	2,711	80.3
1944	3,436	2,716	79.0
1945	3,621	2,833	78.2
1946	4,192	3,424	81.7
1947	5,190	4,337	83.6
1948	5,216	4,440	85.1
1949	5,955	5,218	87.6
1950	6,709	6,027	89.8
1951	7,549	6,884	91.2
1952	8,246	7,539	91.4
1953	9,326	8,675	93.0
1954	10,221	9,350	91.5

TABLE 2.—*Site* of Registered Cancer Cases Confirmed by Histopathology, 1942-1954*

Selected Sites	Total Cases	Confirmed by Histopathology Number	Per Cent
Total	76,499	66,923	87.5
Buccal cavity and pharynx	2,995	2,805	93.7
Stomach	4,928	3,518	71.4
Rectum	3,917	3,523	89.9
Trachea, bronchus and lung	4,255	3,452	81.1
Breast	9,476	8,713	91.9
Cervix uteri	4,820	4,476	92.9
Uterus, other than cervix	2,624	2,494	95.0
Prostate	4,381	3,315	75.7
Skin	7,870	7,409	94.1
Lymphatic and hematopoietic tissues	4,281	3,713	86.7
All other sites	26,952	23,505	87.2

*W.H.O., International Statistical Classification, Sixth Revision, used throughout text.

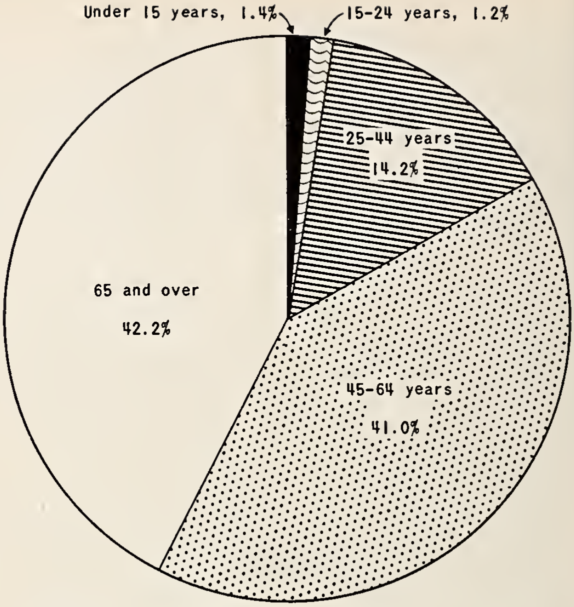


Chart 1.—Age distribution in registered cancer cases.

100 per cent. The use of microscopic study has increased during recent years in the hospitals participating in the California Tumor Registry, with 91.5 per cent of the cancer cases diagnosed in 1954 confirmed by histopathology (see Table 1).

Although more than 9,500 of the cases in this series were not microscopically confirmed, they are included in the analysis. This is a report on cases reported to the California Tumor Registry that are listed as cancer in the participating hospitals. One of the reasons for the lack of confirmation may be that some lesions appeared so positively cancerous upon clinical examination that microscopic examination was considered unnecessary. For example, 96.0 per cent of the localized cases were confirmed; for metastatic lesions it was only 80.4 per cent.

As might be expected, the proportion of microscopically proven cases varies fairly directly with the accessibility of the site (see Table 2). For example, more than 90 per cent of the cases with cancer of the buccal cavity and pharynx, breast, uterus, and skin were confirmed by histopathology. Stomach and prostate showed the lowest percentages with microscopic diagnoses.

Age Distribution of Registered Cases

Although cancer is usually considered a disease of older people, it is by no means rare in children and young adults. Chart 1, which shows the age distribution of the cancer cases, reveals that cancer occurs at all ages. In this series 1,053 or 1.4 per cent of the total cases were children less than 15 years of age at diagnosis. Well over half of all cases affected were persons under 65 years of age.

The age of cancer patients varies considerably from one site to another, with a difference of 20 years in the average ages of cervix and prostate cases. The proportion of persons under 45 years of age at time of diagnosis are even more variable by site of cancer, as seen in the 0.5 per cent of prostate cases contrasted with the 36.8 per cent of cervix cases (Table 3).

Sex Distribution of Registered Cancer Cases

More female than male cancer cases were reported to the California Tumor Registry, the ratio being 1.2 to 1. The proportion of cases by sex varies considerably with site of cancer. The largest differences occurred for breast where 99.0 per cent of the cases were female, and for lung where 82.5 per cent were male.

The most common location of malignant neoplasms among females was the breast, which accounted for 22.8 per cent of all female cases. Cancer

TABLE 3.—*Age Distribution of Registered Cancer Cases by Site, 1942-1954*

Selected Sites	Average Age	Total Cases	Under 15	15 to 24	25 to 44	45 to 64	65 and Over
Total	59	100.0	1.4	1.2	14.2	41.0	42.2
Buccal cavity and pharynx	59	100.0	0.7	1.5	15.9	42.7	39.2
Stomach	65	100.0	....	0.1	6.0	39.7	54.2
Rectum	64	100.0	....	0.1	6.9	42.2	50.8
Trachea, bronchus and lung	61	100.0	0.1	0.2	8.0	55.0	36.7
Breast	57	100.0	....	0.3	21.4	46.8	31.5
Cervix uteri	51	100.0	....	0.8	36.0	44.5	18.7
Uterus, other than cervix	58	100.0	....	1.0	11.5	58.6	28.9
Prostate	71	100.0	0.2	....	0.3	20.2	79.3
Skin	64	100.0	0.4	0.6	9.3	31.1	58.6
Lymphatic and hematopoietic tissues	51	100.0	9.9	4.4	16.1	35.9	33.7
All other sites	58	100.0	2.1	2.0	14.8	41.5	39.6

of the uterus, the second most frequent site, constituted 18.1 per cent of the cases. Among males the largest proportion of cases 13.7 were of the skin; 12.4 per cent prostate; 9.9 per cent lung, and 9.2 per cent were of the stomach.

Stage of Disease at Diagnosis

The California Tumor Registry classifies a cancer as localized if, at diagnosis, the neoplasm appears to be confined to the organ in which it originated. If the cancer has spread to the regional lymph nodes or has progressed beyond the boundaries of the original organ by direct extension, it is considered to have regional and/or node involvement. A neoplasm which has spread to another organ by means of blood or lymph channels beyond the regional lymph nodes is defined as having distant metastasis. Tumors of the lymphatic and hematopoietic tissues are not assigned a stage classification because they are considered to be a systemic malignancy.

Since the stage of the disease is one of the factors which must be taken into account in studying the survival experience of cancer patients, it is important that the stage of the neoplasm be recorded in the tumor registry records. Stage was and still is poorly recorded in registry records of many hospitals. The Registry, by using the information contained in the hospital records, has helped to improve the quality of these records. In participating hospitals the recording of stage for all sites, excluding cases with cancer of the lymphatic and hematopoietic tissues, has improved from about 50 per cent in the time period 1942-1945 to more than 80 per cent in 1954.

With neoplasms of the lymphatic and hematopoietic tissues excluded, 27.5 per cent were localized, 17.4 per cent showed regional involvement, 24.0 per cent had distant metastasis, and 31.1 per cent of the cases did not have stage of disease recorded by the hospital tumor registry. At first glance Table 4 seems to show an increase in the proportion of cases that were first seen while in the localized stage. It is interesting to note however, that as the proportion of cases with stage not recorded decreased the pro-

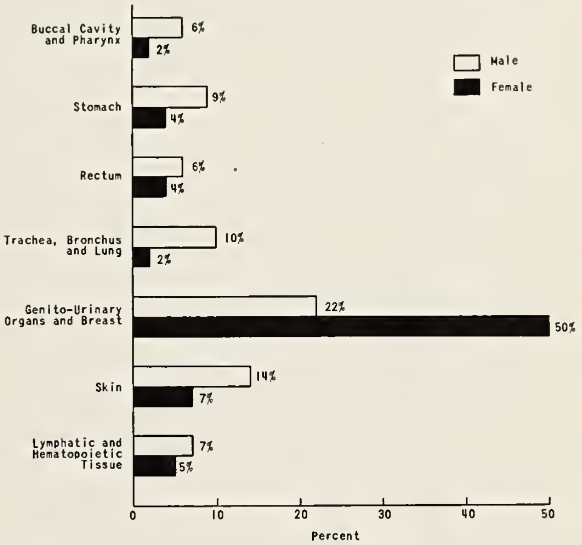


Chart 2.—Registered cancer cases by sex and site of cancer.

TABLE 4.—*Stage of Disease of Registered Cases* by Year of First Diagnosis, 1942-1954*

Year of First Admission	Total Cases	Localized	Regional Spread	Distant Metastasis	Stage Not Recorded
Total	100.0	27.5	17.4	24.0	31.1
1942	100.0	10.2	19.0	25.1	45.7
1943	100.0	10.8	16.5	23.7	49.0
1944	100.0	11.9	16.9	22.9	48.3
1945	100.0	12.0	17.3	22.9	47.8
1946	100.0	11.5	19.2	24.5	44.8
1947	100.0	15.2	17.5	23.6	43.7
1948	100.0	19.5	17.9	23.1	39.5
1949	100.0	27.0	22.2	21.5	29.3
1950	100.0	29.7	17.6	23.4	29.3
1951	100.0	39.4	15.1	25.2	20.3
1952	100.0	38.3	14.7	26.3	20.7
1953	100.0	38.7	15.4	25.0	20.9
1954	100.0	38.6	18.9	23.4	19.1

*Excludes 4,281 cancer cases of the lymphatic and hematopoietic tissues.

TABLE 5.—*Type of Treatment Given During First Admission in Registered Cancer Cases by Site, 1942-1954*

Selected Sites	Total Cases	Surgery	Radiation	Surgery and Radiation	Other or No Treatment
Total	100.0	45.2	12.8	4.5	37.5
Buccal cavity and pharynx	100.0	47.2	30.5	4.4	17.9
Stomach	100.0	33.4	0.9	0.1	65.6
Rectum	100.0	59.2	1.7	0.7	38.4
Trachea, bronchus and lung	100.0	16.5	11.7	1.3	70.5
Breast	100.0	73.2	4.3	11.5	11.0
Cervix uteri	100.0	16.3	62.7	4.5	16.5
Uterus, other than cervix	100.0	39.9	26.8	17.1	16.2
Prostate	100.0	58.1	1.1	1.3	39.5
Skin	100.0	49.1	19.1	2.9	28.9
Lymphatic and hematopoietic tissues	100.0	8.9	26.8	3.8	60.5
All other sites	100.0	47.9	5.4	3.9	42.8

portion of localized increased. There was little variation in the proportion of cases reported as first seen with regional involvement or distant metastasis.

Treatment

Treatment, as defined by the California Tumor Registry, includes all medical procedures directed toward destruction of the neoplasm during the first admission to the reporting hospital and the three-month period following discharge. Patients not treated (or with no record of treatment) during this limited period, as well as those which were never treated at all, fall into the "no treatment" category. Treated cases are classified as having received any one or combination of the following methods of therapy: Surgery, radiation, radioactive isotopes, chemotherapy or steroid therapy.

In this report cases treated exclusively by radioactive isotopes, chemotherapy, steroid therapy, fulguration, desiccation and curettage for skin and bladder tumors, and blood transfusions for leukemia have been grouped with "no treatment" cases into the category "other or no treatment."

The type of treatment given to a cancer patient is dependent upon the site of the cancer as well as other factors such as the stage of disease, the age, sex, and physical and emotional condition of the patient. Table 5 indicates that surgery, during the period of observation, was the main line of attack against most malignant neoplasms in the hospital cases studied. Radiation was the more common form of therapy for cancer of cervix uteri and the lymphatic and hematopoietic tissues.

Follow-up of Cancer Patients

Follow-up of the cancer patient serves two important purposes. It promotes continuing care of the cancer patient (one of the basic elements of a cancer control program). It also makes available a broad experience of survival data which can be analyzed with respect to site and type of tumor, stage of disease when first diagnosed, treatment given, and the factors of age, race, and sex of the patient.

Marked progress has been made in follow-up by the California Tumor Registry since the first attempt in 1950 when nine hospitals reported follow-up information on their cases. The over-all loss to follow-up (i.e., no information as to patient's status during the preceding year) among 20,511 cases reported by these hospitals was 11.8 per cent. In 1952 these same hospitals followed a total of 31,024 cases and lost only 6.3 per cent.

Results of the follow-up conducted by 27 hospitals in 1952 have been analyzed in some detail in Tables 6, 7, 8, and 9. This follow-up included 43,507 cancer cases seen during the nine-year period 1942-1950 in nine county hospitals and 18 private hospitals. Surprisingly little variation is apparent in the percentage of lost cases by year of admission (see Table 6). While there may be less chance of locating a living patient as the years pass after his first admission, there is at the same time a greater chance of the patient dying and obtaining follow-up information from death records.

Well over half of the cases in the group studied were found to be dead, either through death clearance by the Vital Records Section of the State Department of Public Health or by the hospitals, before follow-up was attempted. An additional 5 per cent of the cases were discovered to be dead by the hospitals in the course of follow-up (see Table 7).

Contact with the private physician, hospital admission, clinic visit, communication with the patient or other source gave evidence that 10,900 or 25.1 per cent of the original group were still alive in 1951 or 1952. The proportion of cases found alive was considerably greater for the private hospitals, probably owing to the greater number of terminal cases and patients of advanced age admitted to the county hospitals. The group of patients whose status was unknown was kept to a minimal 2.7 per cent by the county hospitals.

The source of follow-up information indicates the extent to which cancer patients are remaining under medical care. Seventy per cent of the 10,900 cancer

TABLE 6.—*Results of Follow-up on Registered Cancer Cases by Year of Admission, 1942-1950*

Year of First Admission	Total Cases	Status of Patient in 1951 or 1952			Per Cent Unknown		
		Alive	Dead	Unknown	All Hospitals	County	Private
Total	43,507	10,900	29,467	3,140	7.2	2.7	11.4
1942	3,412	417	2,740	255	7.5	2.8	12.4
1943	3,384	421	2,683	280	8.3	2.5	13.2
1944	3,505	481	2,769	255	7.3	1.8	12.3
1945	3,648	556	2,812	280	7.7	2.7	12.2
1946	4,212	763	3,136	313	7.4	3.1	11.6
1947	4,847	1,292	3,167	388	8.0	3.2	12.0
1948	5,463	1,492	3,579	392	7.2	3.0	11.1
1949	7,066	2,328	4,230	508	7.2	2.8	11.2
1950	6,497	2,849	3,226	422	6.5	2.4	9.6

TABLE 7.—*Status of Patient on Follow-up, 1942-1950*

Status of Patient	Number			Per Cent		
	All Hospitals	County	Private	All Hospitals	County	Private
Total	43,507	20,885	22,622	100.0	100.0	100.0
Dead before follow-up	27,176	15,662	11,514	62.5	75.0	50.9
Dead on follow-up	2,291	828	1,463	5.3	4.0	6.5
Alive	10,900	3,835	7,065	25.1	18.4	31.2
Unknown	3,140	560	2,580	7.2	2.7	11.4

patients found to be alive on follow-up had been examined by physicians during the preceding year.

The data on continuity of medical care, of course, do not take into account the number of patients upon whom follow-up data could not be obtained. Assuming that a substantial number of "lost" patients could be found alive, and that they would be less likely to be under medical care than those on whom a follow-up report had been obtained, the percentage of those seen by physicians would drop below 70 per cent.

The results of the 1952 follow-up varied somewhat by site. In general, the more fatal sites of cancer (digestive organs, respiratory organs, and lymphatic and hematopoietic tissues) had fewer lost cases for the reason that these cases do not survive as long after diagnosis as do other cancer cases, and therefore follow-up is terminated. The highest losses were among cases with neoplasms of the buccal cavity and pharynx, uterus (other than cervix), and skin.

Survival in Registered Cancer Cases

Analysis of the survival of cancer patients is based on 56,126 cases initially diagnosed in 1942-1952 in one of the 34 hospitals which reported follow-up information in 1954. The inclusion of only those cases first diagnosed in reporting hospitals provides a homogenous group for which survival rates may be evaluated. All such cases—whether treated or untreated, "interesting" or "routine," confirmed or not confirmed by microscopic examination of tissue—are included in Table 10.

TABLE 8.—*Source of Follow-up Report*

Source of Follow-up Report	All Hospitals	County	Private
Total	100.0 (10,900)	100.0 (3,835)	100.0 (7,065)
Examination	70.5	63.8	74.1
Physician's Office	30.1	4.0	44.3
Hospital	6.9	13.0	3.6
Clinic	33.5	46.8	26.2
Report	29.5	36.2	25.9
Patient or Relative	17.7	24.3	14.1
Other	11.8	11.9	11.8

TABLE 9.—*Results of Follow-up on Registered Cases by Site*

Selected Sites	Total All Cases	Status in 1951 or 1952		
		Alive	Dead	Unknown
Total	43,507	25.1	67.7	7.2
Buccal cavity and pharynx	2,212	33.0	56.3	10.7
Stomach	2,954	7.4	88.8	3.8
Rectum	2,394	20.0	74.8	5.1
Trachea, bronchus and lung	2,067	4.5	92.6	2.8
Breast	5,005	34.9	58.2	6.9
Cervix uteri	3,898	34.2	58.0	7.8
Uterus, other than cervix	1,443	38.9	49.7	11.4
Prostate	2,556	16.6	76.2	7.2
Skin	4,103	50.3	39.1	10.6
Lymphatic and hematopoietic tissues	2,704	10.9	84.9	4.1
All other sites	14,171	20.9	71.6	7.5

TABLE 10.—*One, Three and Five-Year Survival Rates for Selected Sites of Cancer by Stage, 1942-1952**

Site and Stage of Disease	Number of Cases Reported	Survival Rate (Per Cent) One Year	Three Year	Five Year
Total, all sites	56,126	56.1	38.9	30.8
Localized	12,561	83.9	69.2	58.8
Regional spread	9,339	56.3	33.9	25.1
Distant metastasis	12,950	25.7	11.5	7.8
Hemic or lymphatic origin	3,277	34.3	18.0	11.4
Stage not recorded	17,999	63.3	45.4	36.5
Stomach	3,940	25.2	11.6	7.9
Localized	245	57.2	38.9	31.8
Regional spread	880	30.8	12.0	7.0
Distant metastasis	1,729	13.2	3.7	2.4
Stage not recorded	1,086	33.0	18.2	12.7
Rectum	2,970	56.8	32.1	24.5
Localized	553	82.8	61.4	50.5
Regional spread	633	58.6	28.3	22.9
Distant metastasis	708	28.8	10.2	7.3
Stage not recorded	1,076	61.2	34.8	25.3
Lung	3,050	15.8	6.2	4.0
Localized	198	36.3	21.0	14.4
Regional spread	536	18.2	4.3	1.5
Distant metastasis	1,284	5.8	1.5	0.8
Stage not recorded	1,032	23.5	10.6	7.3
Breast	7,161	83.0	61.4	48.1
Localized	1,884	95.0	83.1	70.3
Regional spread	2,318	84.3	56.4	41.6
Distant metastasis	1,649	64.5	39.2	26.8
Stage not recorded	1,310	87.0	68.8	56.9
Cervix uteri	3,561	74.3	52.3	44.2
Localized	1,050	90.1	75.1	66.5
Regional spread	751	65.1	38.4	29.5
Distant metastasis	398	33.8	12.0	7.6
Stage not recorded	1,362	79.8	55.8	47.8
Uterus, other than cervix	1,953	77.8	63.9	56.5
Localized	578	93.1	81.9	76.6
Regional spread	228	67.3	50.2	40.7
Distant metastasis	238	36.2	19.7	16.2
Stage not recorded	909	82.0	68.0	59.3
Prostate	3,264	62.9	35.9	22.5
Localized	514	73.3	51.6	31.2
Regional spread	334	62.4	34.8	21.2
Distant metastasis	784	41.0	13.2	7.4
Stage not recorded	1,632	70.4	42.8	27.4

*California Tumor Registry, 34 hospitals.

The table shows the proportion of cases alive at one, three, and five years after diagnosis of cancer for selected sites by stage of disease at diagnosis.

The actuarial method which is designed to make use of all known information on each patient, was used to calculate survival rates.

In this series of cases 6.2 per cent were lost to follow-up within one year of diagnosis, 7.8 per cent within three years of diagnosis, and 9.0 per cent within five years. To establish a follow-up system and to enter each case into the system immediately upon discharge of the patient is highly important to the success of a registry. It is difficult to locate a patient if there has been a break in contact although it may be possible that some of those recorded as lost will later be found and reentered into the study as either alive or dead.

The number of years of survival of the cancer patient is dependent upon many factors, such as the site and type of cancer, the stage of disease at diagnosis, the type of treatment given, and the age and sex of the patient. Table 10, for example, shows that cancer cases diagnosed while still in the localized stage have almost double (58.8 per cent) the five-year survival rate as those for all stages combined (30.8 per cent). Five-year survival for the group which had metastatic cancer at diagnosis is only 7.8 per cent.

Survival rates also vary sharply according to site of disease. Of the seven sites for which rates are calculated, cases with cancer of the breast have the best chances for surviving five years, while lung and stomach cancer patients have the poorest prognosis.

Other Information Recorded on Each Case

In addition to the items described thus far, the following information is also recorded on the abstract form and punched onto a tabulating card for each case: Marital status, race, delay period from onset of chief complaint to first diagnosis, and type of admission to the hospital. Besides the fact that the patient received surgical treatment, the type of surgery performed is also recorded; i.e., simple or radical excision, partial, total or radical resection, partial or total amputation, or enucleation.

The diagnosis is coded according to two classifications: (1) World Health Organization, *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death,* Sixth Revision, Adopted 1948, and (2) American Medical Association, *Standard Nomenclature of Diseases and Operations,* Fourth Edition, 1952, which enables the production of data comparable to mortality statistics and data from other registries and also to have a detailed classification of site and type of cancer.

USES OF CALIFORNIA TUMOR REGISTRY DATA

While the hospital registry serves as a ready source of information to physicians in a single institution, the California Tumor Registry also now makes available the combined experience of 40 hospitals in the state. The accumulation of this great volume of diagnostic, treatment, and follow-up information makes possible statistical analyses of the extent and nature of the cancer problem in California on a scale not available in one hospital or one physician's practice.

Survival Rates of Cancer Patients

One of the more important features of the California Tumor Registry is the possibility of measuring survival for a comprehensive group of cancer cases. Determination of the course of the disease and the length of survival of the cancer patient through continuous follow-up permits the evaluation of current control methods as applied in California.

For the Third National Cancer Conference, held in Detroit in June 1956, the Registry provided five-year survival data for the major sites and types of cancer by stage of disease at diagnosis and initial course of treatment. These were collated with similar data from other registries in the nation by the National Cancer Institute and the American Cancer Society who co-sponsored the Conference.

Another contribution of the California Tumor Registry will be to the Cancer Chemotherapy National Service Center of the National Cancer Institute. This organization is supporting research in the chemical aspects of cancer treatment. The major registries in the country will submit descriptive and survival data as well as cooperate in research studies in specific areas of the cancer problem.

The Registry also plans to publish data on one, three, and five-year survival rates of cancer patients distributed by site, stage, and sex, and adjusted for the probability of dying from causes other than cancer.

Epidemiologic Investigation of Cancer

Studies of the incidence of malignant neoplastic disease are fundamental to the knowledge of its epidemiology. The major limitation in using the California Tumor Registry for epidemiologic study is the lack of knowledge about the size and characteristics of the population from which the cases come. Thus, there is no base for the calculation of rates and direct measure of risk.

However, utilization of the material available can serve as the basis for the study of certain aspects of the epidemiology of cancer. By examining the relative frequency of various sites of cancer in selected groups of patients, existing hypotheses can be subjected to further tests and new hypotheses may be developed. For example, an association between cancer and socio-economic status has been suspected. By contrasting county and private hospital admissions, variations are observed in the site, age and survival of cancer patients. In the county hospitals, for instance, 16.4 per cent of the male patients age 45 to 64 had lung cancer, whereas in private hospitals the figure was only 8.6 per cent. Cancer of the stomach was also more prevalent among males age 45 to 64 in county hospitals. Conversely, a higher percentage of private hospital male cancer patients age 45 to 64 had skin cancer than county patients. The proportion of women with cancer of the cervix uteri was higher among county hospital female cancer patients than among private patients.

Studies on Special Groups of Registered Cases

The California Tumor Registry data have been used by staff members of Registry hospitals, the Cancer Commission of the California Medical Association, the State Department of Public Health, and others engaged in medical research.

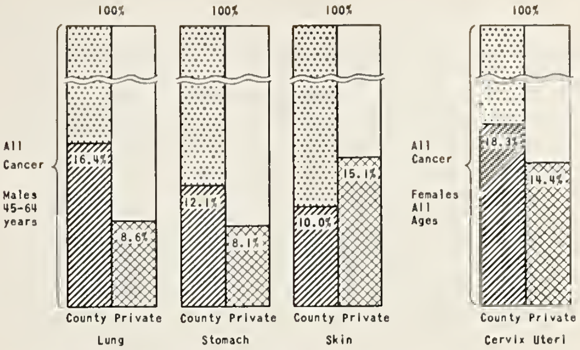


Chart 3.—Proportion of cancer cases of selected sites to total cancer in cases reported by county and private hospitals.

The greatest interest expressed in these requests for data has centered around the question of cancer control of specific sites; mainly, breast, stomach, thyroid gland, and female genital organs. Other queries have pertained to epidemiologic investigations. The following are examples of the more than 70 questions that have been answered by Registry data:

What proportion of all cancers are detectable by a dentist?

Is carcinoid of the rectum a rare disease?

What histologic types of cancer are found among children under 15?

How long do women live after diagnosis of breast cancer?

What is the effect of various types of treatment, or no treatment, on the survival of women with ovarian cancer?

Taking treatment into account, how long do men with prostatic cancer live after diagnosis?

What is the average years of survival of cases with cancer of the thyroid gland?

What is the incidence of visceral cancer among persons with skin cancer?

Statistical Reports to Participating Hospitals

One of the Registry functions is to furnish the participating hospitals with annual reports on their experience with cancer patients. These reports consist of tables showing site, stage, diagnostic evidence, type of treatment, and follow-up. Periodically the Registry prepares for each hospital survivorship information for various sites of cancer by stage of disease. Because the physicians are interested in comparing their experience, summary data similar to the individual hospital tables are compiled for the entire Registry experience.

The data included in the tables are selected as holding the widest general interest: They by no means exhaust the information available from the Tumor Registry. These reports are intended to provide general data on the cancer experience of the hospital and to indicate the type of data which could be assembled from the Registry.

The California Tumor Registry encourages the physicians to analyze their own data. Diagnostic indexes have been prepared so that the hospital staffs may easily identify the cancer cases of the particular site they wish to study. Assistance is also given in setting up tables and in recommending methods of analysis.

2151 Berkeley Way, Berkeley 4 (Breslow).

ACKNOWLEDGMENT

Grateful acknowledgment is made to James W. Ellis, M.D., F.A.C.S., cancer consultant to the California Tumor Registry, for his invaluable counsel in the development of the Registry; to Gladys Rasmussen, Beth Siegel and other members of the Registry staff who assisted in the development of the statistical data.

We are also indebted to the many members of the Cancer Commission of the California Medical Association for their counsel and review of the paper.

REFERENCES

1. Cancer illness among residents of San Francisco and Alameda Counties, California, Cancer Morbidity Series 2, 1951, Federal Security Agency, Public Health Service.

2. Shimkin, M. B.: Cancer of the breast, Surg., Gynec. & Obst., 94:645-661, June 1952.

Postgraduate Education Courses for 1958 Annual Session

An innovation in C.M.A. meetings is being planned for the 1958 Annual Session. It is proposed to offer three postgraduate education courses of 12 hours each in connection with the scientific meetings. It is expected that official credit would be given for these courses.

As now planned, each of the three medical schools in Southern California would put on a course of three hours daily for the four days of the meeting.

Present plans call for University of Southern California to handle a course on liver diseases. U.C.L.A. Medical School would present a course on abdominal pain and College of Medical Evangelists would take charge of a series on management of trauma.

It is planned to make an admission charge for these courses, although the full details remain to be worked out.

Further announcements will be made when plans are completed.

In Memoriam

Hollis Layton Carey

Dr. Hollis Layton Carey, Gridley, died August 1, 1957, aged 54, in Biggs-Gridley Memorial Hospital, of cancer of the large bowel.

Dr. Carey was highly respected as a physician and surgeon by patient and medical colleague alike. An index of his activity and interest in community affairs is reflected by his membership in numerous local organizations: 32nd degree Mason (North Butte Lodge No. 230); Ben Ali Temple of the Shrine, Gridley Rotary Club, and others. Recently he was awarded a Life Membership in the Gridley High School P-T.A. in recognition of his years of service, especially as physician to the high school football team. Perhaps the most outstanding contribution to his community was the vast amount of time and energy devoted to the planning and erection of the Biggs-Gridley Memorial Hospital.

He was a member of the A.M.A., C.M.A., Butte-Glenn Medical Society, and the California Chapter of the American Academy of General Practice. He was a past president of the Butte-Glenn Medical Society and was a delegate to the C.M.A. for many years until 1952, when he was elected to the Council of the C.M.A. He served as Councilor-at-Large of the 11th District until his death. While a member of the C.M.A. Council, he was Chairman of the Medical Services Commission, among whose many accomplishments were the Relative Value Fee Study and the intensive studies of and investigations into the care of the indigent and aged.

Those who knew Hollis best will long remember his tremendous dedication to organized medicine, particularly as it concerned patient welfare. His willingness to accept any task in the name of medicine, regardless of how large or how small, his persistence in the face of adversity, and his determined diligence until the job was completed should be a source of continued inspiration to us all.

He was born in Fall City, Oregon, July 29, 1903. He received a B.S. degree from the University of Oregon in 1930; M.S. from University of Washington in 1931; and his doctorate in medicine from the University of Oregon in 1936. He interned at St. Luke's Hospital, Spokane, Washington; started general practice in Towers, Oregon, in 1937; moved to Gridley in 1938 and practiced there until his death.

Thomas N. Elmendorf

Biro, Louis P. Died in Los Angeles July 23, 1957, aged 66. Graduate of the University of Pennsylvania School of Medicine, Philadelphia, 1920. Licensed in California in 1947. Doctor Biro was a member of the Los Angeles County Medical Association.

✣

Camero, Anthony R. Died in Los Angeles, July 20, 1957, aged 52. Graduate of the University of Pennsylvania School of Medicine, Philadelphia, 1929. Licensed in California in 1941. Doctor Camero was a member of the Los Angeles County Medical Association.

✣

Carey, Hollis Layton. Died in Gridley, August 1, 1957, aged 54, of cancer of the large bowel. Graduate of the University of Oregon Medical School, Portland, 1936. Licensed in California in 1938. Doctor Carey was a member of the Butte-Glenn County Medical Society.

✣

Cartmell, Theodore Methoff. Died July 3, 1957, aged 76. Graduate of Columbia University College of Physicians and Surgeons, New York, N. Y., 1907. Licensed in California in 1944. Doctor Cartmell was a retired member of the Los Angeles County Medical Association and the California Medical Association, and an associate member of the American Medical Association.

✣

Christie, Ralph C. Died in Long Beach, August 2, 1957, aged 74. Graduate of the University of Nebraska College of Medicine, Omaha, 1909. Licensed in California in 1922. Doctor Christie was a retired member of the Los Angeles County Medical Association and the California Medical Association, and an associate member of the American Medical Association.

✣

Dempsey, Robert B. Died in Vallejo, July 9, 1957, aged 81, of heart disease. Graduate of the College of Physicians and Surgeons of San Francisco, 1903. Licensed in California in 1903. Doctor Dempsey was a retired member of the Solano County Medical Society and the California Medical Association and an associate member of the American Medical Association.

✣

Eder, Howard L. Died in Santa Barbara, July 12, 1957, aged 60. Graduate of the University of Minnesota Medical School, Minneapolis, 1922. Licensed in California in 1929. Doctor Eder was a member of the Santa Barbara Medical Society.

✣

Gevurtz, William S. Died in Lynwood, July 3, 1957, aged 46, of heart disease. Graduate of the University of Oregon Medical School, Portland, 1937. Licensed in California in 1947. Doctor Gevurtz was a member of the Los Angeles County Medical Association.

✣

Kroener, William F., Sr. Died in Carmel, July 16, 1957, aged 67. Graduate of Rush Medical College, Chicago, Illinois. Licensed in California in 1926. Doctor Kroener was a retired member of the Los Angeles County Medical Association and the California Medical Association, and an associate member of the American Medical Association.

Lesem, Alexander Marx. Died in Point Loma, July 16, 1957, aged 78. Graduate of the College of Physicians and Surgeons, Los Angeles, 1914. Licensed in California in 1914. Doctor Lesem was an honorary member of the San Diego County Medical Society and the California Medical Association, and a member of the American Medical Association.

✣

Olds, William Henry. Died in Los Angeles, July 31, 1957, aged 70, of heart disease. Graduate of Rush Medical College, Chicago, Illinois, 1912. Licensed in California in 1914. Doctor Olds was a member of the Los Angeles County Medical Association.

✣

Pearson, Robert G., Sr. Died April 27, 1957, aged 75. Graduate of the University of Pennsylvania School of Medicine, Philadelphia, 1908. Licensed in California in 1909. Doctor Pearson was a retired member of the Sacramento Society for Medical Improvement and the California Medical Association, and an associate member of the American Medical Association.

✣

Richards, Charles Maynard. Died in San Jose, June 27, 1957, aged 75. Graduate of Harvard Medical School, Boston, 1907. Licensed in California in 1909. Doctor Richards was a member of the Santa Clara County Medical Society.

Ritchie, Douglas William. Died in Temple City, July 26, 1957, aged 62. Graduate of the University of Oregon Medical School, Portland, 1926. Licensed in California in 1927. Doctor Ritchie was a member of the Los Angeles County Medical Association.

✣

Sprague, Buell R. Died July 14, 1957, aged 72. Graduate of Sioux City College of Medicine, Iowa, 1908. Licensed in California in 1930. Doctor Sprague was a member of the Los Angeles County Medical Association.

✣

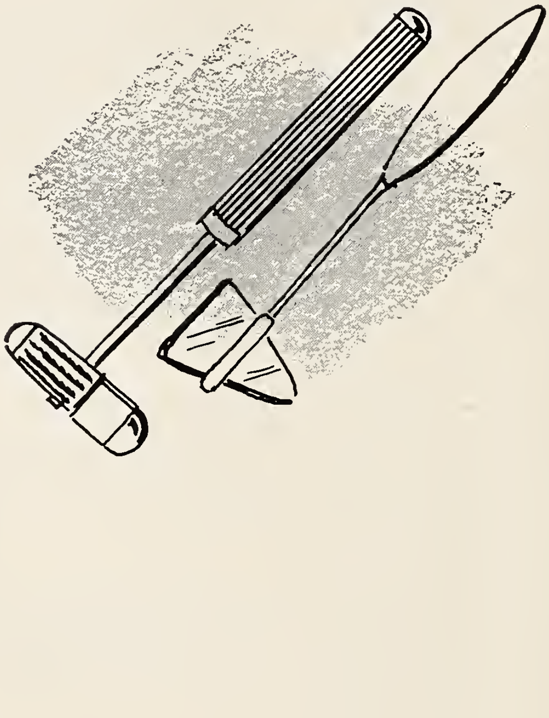
Stanton, Frank E., Sr. Died in Long Beach July 29, 1957, aged 73. Graduate of Rush Medical College, Chicago, 1910. Licensed in California in 1914. Doctor Stanton was a member of the Los Angeles County Medical Association.

✣

Svec, Floyd Alfred. Died in an automobile collision near Newhall July 7, 1957, aged 40. Graduate of Northwestern University Medical School, Chicago, 1945. Licensed in California in 1947. Doctor Svec was a member of the Los Angeles County Medical Association.

✣

Turner, Ewing Lee. Died in San Diego, July 24, 1957, aged 52, of heart disease. Graduate of Rush Medical College, Chicago, 1934. Licensed in California in 1935. Doctor Turner was a member of the Los Angeles County Medical Association.



CALIFORNIA MEDICAL ASSOCIATION

Annual Meeting

Ambassador Hotel

LOS ANGELES

April 27 - April 30, 1958

Papers for Presentation

If you have a paper that you would like to have considered for presentation, it should be submitted *to the appropriate section secretary* (see list on this page) no later than November 1, 1957.

Scientific Exhibits

Space is available for scientific exhibits. If you would like to present an exhibit, please write immediately to the office of the California Medical Association, 450 Sutter Street, San Francisco 8, for application forms. To be given consideration by the Committee on Scientific Work, the forms, completely filled out, must be in the office of the California Medical Association no later than December 1, 1957. (No exhibit shown in 1957, and no individual who had an exhibit at the 1957 session, will be eligible until 1959.)

SCIENTIFIC PAPERS
SCIENTIFIC EXHIBITS
PLANNING MAKES PERFECT
AN EARLY START HELPS

SECRETARIES OF SCIENTIFIC SECTIONS

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ANESTHESIOLOGY	John S. Hattox, Jr.	2558 Fourth Avenue, San Diego 3
DERMATOLOGY AND SYPHILOLOGY	Daniel J. Perry	2200 Santa Monica Boulevard, Santa Monica
EAR, NOSE AND THROAT	Walter E. Heck	Stanford University Hospitals, San Francisco 15
EYE	O. Ralph Tanner	300 Homer Avenue, Palo Alto
GENERAL PRACTICE	Howard E. Horner	1033 Gayley Avenue, Los Angeles 24
GENERAL SURGERY	Edwin G. Clausen	418 30th Street, Oakland 9
INDUSTRIAL MEDICINE AND SURGERY	Leonard J. Yamshon	224 North Serrano Avenue, Los Angeles 4
INTERNAL MEDICINE	Allen T. Hinman	450 Sutter Street, San Francisco 8
OBSTETRICS AND GYNECOLOGY	Donald R. Nelson	2439 Ocean Avenue, San Francisco 27
ORTHOPEDICS	Floyd H. Jergesen	384 Post Street, San Francisco 8
PATHOLOGY AND BACTERIOLOGY	Leslie R. Grams	O'Connor Hospital, San Jose 14
PEDIATRICS	Percy H. Jennings, Jr.	1650 Walnut Street, Berkeley 9
PHYSICAL MEDICINE	David Rubin	6360 Wilshire Boulevard, Los Angeles 48
PSYCHIATRY AND NEUROLOGY	Elinor R. Ives	5636 Berkshire Drive, Los Angeles 32
PUBLIC HEALTH	Gerald A. Heidbreder	241 North Figueroa Street, Los Angeles 12
RADIOLOGY	Nathan M. Spishakoff	405 North Bedford Drive, Beverly Hills
UROLOGY	Ray C. Atkinson	401 29th Street, Oakland 9

memo from: **medical review and advisory board**

OF THE CALIFORNIA MEDICAL ASSOCIATION

Professional Liability

A Statistical Study of Professional Liability Claims in California: 1957 Report of Medical Review and Advisory Board

JOSEPH F. SADUSK, JR., M.D., Oakland
and ROLLEN WATERSON, San Francisco

• The Medical Review and Advisory Board has completed a statistical study of 700 professional liability claims against physicians in 32 Northern and Southern California counties. The nearly statewide findings closely parallel those of a similar study of nine years' experience in Alameda and Contra Costa Counties. There appear to be no significant differences between the losses incurred by old as against young physicians, by general practitioners as against specialists. More female than male patients made claims; the greatest number of claims was made by patients between the ages of 26 and 45. The largest number of claims involved surgical cases, with obstetrical and gynecological surgery, orthopedic surgery and general surgery heading the list. Seventy-one per cent of claims were made by patients who had been treated in hospital.

A STATISTICAL STUDY of 700 professional liability incidents, claims and suits in California has been completed by the Medical Review and Advisory Board (MRAB) of the California Medical Association. The period covered is less than two years. Since a minimum of five years' data is considered essential to reliable statistics because of the latency of professional liability claims, this study is of value only as it indicates statewide trends or as it confirms previous findings reported[1,2] for Alameda and Contra Costa Counties for the period 1946-1954. (The Alameda-Contra Costa study is the only one of its kind previously reported.) Future annual statistical reports will be made by the MRAB.

SOURCES OF DATA

Reports of incidents, claims and suits were made by three insurance carriers of group professional liability programs in California: (1) American Mutual Liability Insurance Company (AMLICO); (2) Hansen and Rowland (H & R) and (3) The Nettleship Company (TNC). AMLICO is the carrier for 23 Northern California county medical societies. TNC is the approved group carrier for nine Southern California county medical societies. Both H & R and TNC are approved for group programs by the Los Angeles County Medical Association.

PERIOD COVERED BY DATA

The detailed records of the 700 claims which are the subject of this study cover the following periods of time: AMLICO, from May 1, 1955, to February 15, 1957; H & R, from March 1, 1956, to January 15, 1957; TNC, from November 1, 1954, to February 1, 1957. These are claims reported for and during the policy years as noted above; it does not include claims of earlier years which were paid or otherwise settled or closed during the period of the current study as defined above. Only claims in which a reserve was established or indemnity paid are reported in this study.

METHODS AND DEFINITIONS

A Report of Claim was made by the carrier for each claim or suit on which a reserve was established. Changes in status of claims were reported to MRAB as they occurred.

Definitions of terms are as follows:

Suit. A suit is the actual filing in court of a plea for recovery of damages from a physician for alleged malpractice.

Indemnity. Indemnity refers to payment made to the claimant.

Judgment. Judgment is the amount of money awarded by the jury and approved by the judge when the patient plaintiff wins his suit.

Dr. Sadusk is chairman and Mr. Waterson executive secretary of the Medical Review and Advisory Board of the California Medical Association.

Expense. Expense includes the total cost of legal defense, court costs, cost of special investigation and cost of expert witnesses. Expense cost does not include insurance company overhead or salaries of company's personnel.

Reserve. Reserve is the figure set up by the insurance carrier in its best judgment as to what a case will eventually cost, taking into account the sum of expense and indemnity or judgment costs.

Cost. "Cost" as presented in the attached tables includes expense and indemnity or reserve.

Claim. For the purpose of this study, all cases with reserves reported to MRAB are called "claims."

CATEGORIES

Claims fall into a number of categories as follows: (1) Pending suits, not yet tried; (2) suits tried and won for the defendant physician; (3) suits tried and lost by the defendant physician; (4) suits tried, but on appeal; (5) suits settled by payment to the patient before or during trial; (6) claims on which there has been no formal suit but indemnity has been paid; (7) incidents reported by the insured physician, or complaints and claims made by the patient or his attorney, on which suit has not been filed but which the insurance company considers sufficiently serious to warrant setting up a claim file and establishing a reserve.

Statistical data on any current year or immediately preceding years include, largely, pending claims. Because of crowded court calendars, few suits have been tried. Final disposition has been made of only a few of the claims reported here. Only after four or five years will the outcome of enough of the cases have been determined to warrant statistical analysis of claims under the separate categories listed above. For that reason, most of the data reported here will lump all categories listed above into one, which will be called "claims." Where greater detail is indicated, the two categories used in this study are designated as follows:

Claims, Group A: (1) All suits, including pending suits, not yet tried, and suits that have been settled or tried, and (2) all claims on which suit was not filed, but which have been settled by payment of indemnity.

Claims, Group B: Claims falling under Category 7 (see foregoing definitions of categories) on which there have been no suit or other action to date, but for which the insurance company has established a reserve.

All dollar figures and cost comparisons reported in this study apply only to AMLICO, the approved insurance carrier in the Northern California societies (23 counties). In the case of Southern California, only the number of cases is reported, as the two insurance carriers—H & R and TNC—have not disclosed dollar amounts, indemnities paid, judgments rendered, or reserves established. It should be noted at this point that the failure to disclose such financial data is not due to lack of cooperation of the insurance carrier, but rather to the fact that there are two competing carriers within the same locality, and it is understandably regarded as good business not to make such disclosures. The Medical Review and Advisory Board wishes to express its appreciation to all three carriers for the cooperation which they have rendered in furnishing this data.

TABLE 1.—*General Summary of Claims In Present Study*

	Number of Claims			
	AMLICO	H&R-TNC	Total	Cost of Claims AMLICO
Group A claims (1) suits pending, and/or (2) indemnities or judgments paid	77	148	225	$386,163.00
Group B claims (no suit, no indemnity yet paid or other final disposition)	317	158	475	411,655.00
	394	306	700	$797,818.00

Abbreviations: AMLICO = American Mutual Liability Insurance Company; H & R = Hansen & Rowland; TNC = The Nettleship Company.

TABLE 2.—*Age of Physicians Against Whom Claims Were Made**

	Number of Doctors Who Had Claims		Cost of These Claims
Age Group	All Carriers Per Cent of Total	AMLICO only Per Cent of Total	AMLICO only Per Cent of Total
26 to 30	2.1	2.4	1.5
31 to 35	15.7	17.6	13.7
36 to 40	22.0	25.8	27.0
41 to 45	21.7	22.4	26.5
46 to 50	15.3	11.3	11.4
51 to 55	10.1	8.3	8.3
56 to 60	7.0	6.5	6.5
61 to 65	3.4	2.6	2.6
66 to 70	1.3	1.4	1.4
71 to 75	1.1	1.4	1.4
76 to 80	0.3	0.3	0.3
	100.0	100.0	100.0

*Age data on the physicians insured was not available.

The MRAB also wishes to express its appreciation to the California Physicians' Service for the run-off of the punch cards enabling us to proceed with the detailed analysis.

PRESENTATION OF DATA

Table 1 is a general summary of all claims and shows the distribution of Group A and Group B claims in this study. Since H & R and TNC are competitors in the Los Angeles program, we have not been able to show separately the data for each of these two insurance carriers, but have combined them in this report. The wide difference between the proportion of Group A claims and Group B claims reported by the carriers in Table 1 is not necessarily significant, because the combined H & R plus TNC sample includes an earlier period in which only "serious" claims were reported. The longer period of time may also account for the greater number of suits in the H & R and TNC group of cases.

The AMLICO program insures 3,938 physicians as of the period of this study. The total cost of AMLICO's 394 cases is $797,818. This includes both expense and indemnity for settled claims and reserves for pending claims in all categories. Group A claims account for $386,163 of this amount; Group B claims account for $411,655.

PHYSICIAN AGE AND SEX FACTORS

Table 2 shows the number of physicians in various age groups involved in claims. The amount of claims in dollars was available only from AMLICO. Age data on the total number of physicians insured was not available; consequently this table does not reflect or give any specific information with regard to the hazard of various age groups of physicians. It is of interest to note, however, that there is a clear correlation in the age incidence of physicians against whom claims were made for both the AMLICO-insured physicians and the physicians insured under all carriers. In addition, this table basically reflects the same age distribution as noted in the Sadusk study of 1955 for the Alameda-Contra Costa Medical Association.

A further analysis of the sex factor in physicians' claims was studied but it is not reported in tabular form. It was found that 3.3 per cent of physicians involved in claims were female. However, it is not possible to determine what the relative incidence of claims against male as compared with female physicians might be, since data was not available on the sex of all physicians insured. Correlation with the previous Sadusk study is close since that study revealed that female physicians accounted for 3.2 per cent of malpractice incidents.

PATIENT AGE AND SEX FACTORS

Table 3 shows the distribution of claimant patients by age groups. This analysis covers only 559 of the 700 claimants, since the age of 141 of the 700 claimants was not reported by the insurance companies. Of particular note is the large proportion of claimants in the infant age group (up to five years). The cost of these cases to AMLICO closely correlates to the number of claimants in the various age groups for all carriers.

Additional analyses were made of the age of patients according to the type of injury claimed, but no significant variations were noted within the limitations of this study and consequently detailed data are not presented.

TABLE 3.—*Distribution of Claims by Age of Patient (559 Claimants)*

Age of Patient	Number of Patients Making Claims Per Cent of Total	Cost of These Cases AMLICO only Per Cent of Total
0 to 5	12.4	10.3
6 to 10	3.2	1.1
11 to 15	2.5	0.3
16 to 20	4.3	3.5
21 to 25	5.6	8.7
26 to 30	11.2	12.2
31 to 35	9.5	14.5
36 to 40	12.0	15.7
41 to 45	9.2	10.1
46 to 50	6.1	1.8
51 to 55	6.4	4.2
56 to 60	4.8	6.0
61 to 65	3.9	4.0
66 to 70	4.8	5.8
71 to 75	2.0	0.5
76 to 80	1.3	0.8
81 to 85	......	......
86 to 90	0.7	0.1
91 to 95	......	......
96 to 100	......	......
100 to 105	0.1	......
	100.0	100.0

TABLE 4.—*Distribution of Claims by Sex of Claimant*

	Number of Claimants Per Cent of Total	Cost of Claims (AMLICO only) Per Cent of Total
Male	41	39
Female	59	61
	100	100

Table 4 shows distribution of claims by sex of the claimants. The number and the cost of claims by females exceeded those made by males. Similar disparity was previously noted in the Sadusk study of 1955, and possibly reflects the high hazard of obstetrics and gynecology.

TYPE OF MEDICAL PROBLEM

Table 5 shows distribution of claims cases by type of medical problem. Approximately 63 per cent of the total number of cases for all carriers and 62 per cent for AMLICO involved surgical cases. Claims in surgical cases accounted for approximately 70 per cent for the cost of cases in the AMLICO program. Next were internal medicine cases and then, in order, "other" or miscellaneous cases, equipment and radiological cases and blood transfusion reactions. The data in this table are strikingly similar to those reported in the study previously made of the Alameda-Contra Costa County experience for nine years of observation.

TABLE 5.—*Distribution of Claims Cases by Type of Medical Problem*

Type of Medical Problem	Number of Cases: All Carriers No.	All Carriers Per Cent	AMLICO No.	AMLICO Per Cent	Cost of Cases AMLICO Per Cent
Medical	118	16.8	63	16.0	19.4
Surgical	440	62.9	243	61.7	69.5
Radiological	25	3.6	12	3.1	3.0
Equipment	27	3.9	11	2.8	0.7
Blood transfusions	9	1.3	5	1.2	1.8
Other*	81	11.5	60	15.2	5.6
	700	100.0	394	100.0	100.0

*Falls in office, alleged assault or undue familiarity, absence of operation consent, and other unclassified types of injury.

A study of the distribution of surgical cases (Table 6) showed that for all carriers the greatest number was in the field of obstetrics and gynecology and for AMLICO the greatest cost was for cases of that kind. Then followed, in order, orthopedics, general surgery and anesthesiology. Here again the data were essentially similar to those noted in the Alameda-Contra Costa County study. A special analysis to include cases involving retained foreign bodies following surgery revealed a substantial percentage and cost owing to claims of that kind.

TYPE OF PRACTICE OF PHYSICIAN

Table 7 brings out the fact, as previously noted in the Alameda-Contra Costa study, that there is no evidence to show that either the general practitioner or the specialist accounts for a greater proportion of medical malpractice cases. Information on the number of general practitioners and specialists insured was available only in the AMLICO program. Here, the general practitioners insured under the program numbered 41.9 per cent, and accounted for 43.4 per cent of cases and 40.9 per cent of the cost of cases. Specialists made up 58.1 per cent of the physicians insured; they accounted for 56.6 per cent of cases and 59.1 per cent of cost. If one takes into account all three carriers, essentially similar percentages prevail in the distribution of cases between the general practitioner and the specialist. Here, again, as in the Alameda-Contra Costa study, is evidence that medical malpractice hazards are not a reflection of the classification of practice of the physician, but as noted in the previous tabular data, are rather a reflection of the type of practice—surgical versus other medical fields.

A further analysis of cases is presented in Table 8 with regard to whether the physician was a general practitioner, was an American Board-certified specialist or a noncertified specialist. The data here are presented for information only; no conclusions may be drawn, since neither in the AMLICO program nor in any of the other programs was there specific data available on the division of insured physicians between certified specialty and noncertified specialty groups. As the Medical Review and Advisory Board program goes along, it is hoped that such data will be available from the carriers so that further analyses can be made.

TABLE 6.—*Distribution of Surgical Claims Cases Amongst Various Fields of Surgery*

Type of Surgical Problem	Number of Cases: All Carriers No.	All Carriers Per Cent	AMLICO No.	AMLICO Per Cent	Cost of Cases AMLICO Per Cent
Obstetrics-gynecology	95	21.6	56	23.1	37.7
Orthopedics	86	19.5	46	18.9	23.6
General surgery	60	13.6	27	11.1	13.0
Ear, nose, throat	32	7.3	16	6.6	3.5
Plastic surgery	4	0.9	1	0.4	....
Neurosurgery	8	1.8	5	2.1	4.0
Ophthalmology	21	4.9	8	3.3	0.8
Thoracic surgery	9	2.0	2	0.8	....
Anesthesia	63	14.3	47	19.3	6.6
Proctology	7	1.6	3	1.3	1.5
Urology	19	4.3	11	4.5	2.3
Foreign bodies (left in surgery)	36	8.2	21	8.6	7.0
	440	100.0	243	100.0	100.0

TABLE 7.—*Division of Claims Cases as Between General Practitioners and Specialists*

Type of Practice	AMLICO only: Doctors Insured Per Cent	AMLICO only: No. of Cases Per Cent	AMLICO only: Cost of Cases Per Cent	All Carriers No. of Cases Per Cent
General practice	41.9	43.4	40.9	43.2
Specialists	58.1	56.6	59.1	56.8
	100.0	100.0	100.0	100.0

TABLE 8.—*Division of Claims Cases as Between General Practitioners, American Board-Certified Specialists and Noncertified Specialists*

Practitioners	AMLICO only: No. of Cases Per Cent	AMLICO only: Cost of Cases Per Cent	All Carriers No. of Cases Per Cent
General practitioners	43.4	40.9	43.2
Certified specialists	37.1	44.1	37.9
Noncertified specialists	19.5	15.0	18.9
	100.0	100.0	100.0

Table 9 deals with the AMLICO study only, since the specific data presented was available only in that program. It casts light on the relative hazards of various fields of practice. In this table are represented the number of cases charged to each specialty and to general practice as compared with the percentage of those insured. Cost data is likewise included. These data would suggest that the person doing neurosurgery is the most hazardous physician to cover, with orthopedics next in line, and obstetrics and gynecology third. Also worthy of note is the

TABLE 9.—*Distribution of Number of Cases and Costs of Cases Amongst Various Fields of Medicine*

	Number of Doctors Covered; Per Cent of Total	Number of Cases; Per Cent of Total	Cost of Cases; Per Cent of Total	Number of Cases per 100 Doctors Covered in Field	Cost: Expense, Indemnity and Reserve, per Doctor in Each Field
Anesthesiologists	3.3	7.0	2.8	19	$187.00
Dermatologists	1.9	1.7	1.9	7	218.00
Eye, ear, nose, throat	1.0	0.3	.....	....	....
Internists	13.1	4.0	5.3	4	85.00
Neurosurgeons	0.7	1.3	2.8	24	906.00
Obstetricians-gynecologists	5.5	7.0	12.1	12	471.00
Ophthalmologists	2.8	2.7	0.5	8	35.00
Orthopedists	3.5	6.2	11.6	27	762.00
Ear, nose, throat	1.6 (2.6*)	2.9 (3.2*)	0.6*	5*	52.00*
Pathologists	1.4	0.9	0.9	6	145.00
Pediatricians	4.9	2.6	4.1	7	199.00
Plastic surgeons	0.5	0.7	0.1	12	17.00
Proctologists	0.7	0.7	1.1	8	333.00
Psychiatrists	4.2	1.7	2.2	2	112.00
Radiologists	2.9	4.3	3.6	16	287.00
Urologists	2.3	3.5	1.0	19	100.00
Thoracic surgeons	0.5	0.5	0.0	11	4.00
General surgeons	7.2	8.5	8.3	9	258.00
Physical medicine	0.1	0.3	0.0	25	7.00
General practitioners	41.9	43.2	41.1	12	213.00
	100.0	100.0	100.0		
Total specialists	58	57	58.9		221.00
General practitioners	42	43	41.1		213.00
	100.0	100.0	100.0		

(279 of 3,938 doctors in the AMLICO program could not be identified as to field of practice. This is 7.3 per cent of total.)

*Eye, ear, nose, throat and ear, nose, throat combined.

TABLE 10.—*Relative Incidence of Claims Against General Practitioners and Specialists in Various Fields of Medicine*

	General Practitioners			Specialists		
	All Carriers	AMLICO Only		All Carriers	AMLICO Only	
Injury	Number of Cases Per Cent	Number of Cases Per Cent	Cost of Cases Per Cent	Number of Cases Per Cent	Number of Cases Per Cent	Cost of Cases Per Cent
Anesthesia	32	32	56	68	68	44
Dermatology	....	....	....	100	100	100
Internal medicine	60	60	45	40	40	55
Neurosurgery	....	....	....	100	100	100
Obstetrics-gynecology	53	54	49	47	46	51
Ophthalmology	19	20	24	79	80	76
Orthopedics	47	48	36	53	52	64
Ear, nose, throat	44	50	56	56	50	44
Pathology	....	....	....	100	100	100
Pediatrics	40	40	21	60	60	79
Plastic surgery	....	....	....	100	100	100
Proctology	14	33	5	86	67	95
Psychiatry	11	....	....	89	100	100
Radiology (1)	24	11	4	76	89	96
Radiology (2)	....	....	....	100	100	100
Urology	21	18	24	79	72	76
Thoracic surgery	11	....	....	89	100	100
General surgery	50	48	45	50	52	55
Equipment failure	49	27	58	51	73	42
Foreign bodies left in surgery	33	38	35	67	62	65
Falls in office	56	62	86	44	38	14
Toxic drug reactions	55	55	51	45	45	49
Blood transfusions	50	40	66	50	60	34
Infection following injection	67	100	100	33	....	....
Physical medicine	....	....	....	100	100	....
Other*	61	68	60	39	32	40

Radiology (1) excludes deep therapy, radium. Radiology (2) includes deep therapy, radium.

*Includes: Absence of consent to operate, operating the wrong patient, alleged assault or undue familiarity, etc.

TABLE 11.—*Claims of Errors in Diagnosis Related to Various Fields of Medicine and Kind of Practitioner (Number of Cases Includes All Carriers; Cost of Cases Pertains Only to AMLICO)*

	All Injuries		Internal Medicine		Obstetrics-Gynecology		Orthopedics		Radiology		General Surgery	
	No. of Cases Per Cent	Cost of Cases Per Cent	No. of Cases Per Cent	Cost of Cases Per Cent	No. of Cases Per Cent	Cost of Cases Per Cent	No. of Cases Per Cent	Cost of Cases Per Cent	No. of Cases Per Cent	Cost of Cases Per Cent	No. of Cases Per Cent	Cost of Cases Per Cent
Noncertified specialists	13.5	12.3	15.0	15.0	10.0	6.2	13.3	......	9.1	24.5	22.3	67.3
Certified specialists	31.0	43.5	10.0	......	40.0	16.5	20.0	14.2	63.7	69.9	11.2	......
General Practitioners	55.5	44.2	75.0	85.0	50.0	77.3	66.7	85.8	27.2	5.6	66.5	32.7
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Errors in diagnosis also occurred in other fields. All claims made in proctology, dermatology, neurosurgery and psychiatry were against board-certified specialists. In pediatrics and thoracic surgery the claims were about equally divided between general practitioners and specialists. Errors in diagnosis were reported in no other fields.

fact that insurance carriers have traditionally classified plastic surgery as a hazardous field and have required that plastic surgeons pay a higher rate of premium than other surgeons. In this study, the data again suggests that the plastic surgeon does not represent an unusual hazard.

As to statements made in the paragraph above with respect to the hazard of various types of specialties, it should be remembered that this study is for a period of less than two years, and that no conclusions can be accurately drawn until we have carried on this type of analysis for from five to six years and have many more claims to analyze.

The warning to treat the results of this study with caution is repeated with regard to Table 10, which shows the particular fields in which the specialist or the general practitioner appear to encounter the greater malpractice hazards. Table 10 shows that in the fields of medicine and surgery in which general practitioners normally do little work, and therefore have little malpractice exposure, all or most of the cost and number of cases are charged to specialists. These fields are thoracic surgery, urology, plastic surgery, pathology, ophthalmology, neurosurgery, and, to a lesser extent, dermatology, proctology, psychiatry and radiology.

In anesthesiology and ENT (otolaryngology) specialists had the greater number of cases, but general practitioners' cases involved greater cost. The claims against specialists in anesthesia were for minor injuries for the most part, such as broken teeth and dentures—cases which are easily settled for comparatively minor amounts. General practitioners' cases involved claims of greater injury. Taking into account Table 7, where it is shown that general practitioners constitute approximately 42 per cent of AMLICO insured physicians, it would appear that there is a slight excess of anesthesiological and ENT hazard for general practitioners, inasmuch as they account for 56 per cent of the cost of anesthesiological injuries and for the same per cent of the cost of ENT injuries.

Both the number and cost of cases exceed the proportion of insured general practitioners (42 per cent) in internal medicine, obstetrics and gynecology and general surgery. The cost is lower than 42 per cent for general practitioners in orthopedics and pediatrics.

Specialists had the greater number of cases ascribed to "Equipment Failure," but the greater cost in this category, reflecting greater liability or injury, is charged to the general practitioners. This category includes diathermy and Bovie burns, broken needles and the like.

It would appear that specialists are a greater hazard than are general practitioners in regard to leaving foreign bodies in patients at operation. Perhaps this reflects the greater amount of surgical operation done by specialists, but data to support this conjecture are not available.

While "falls in the office" are not a major malpractice problem, it is interesting to note the significant difference between general practitioners and specialists with regard to claims of this order: The general practitioner's hazard is considerably greater, for which there is no apparent explanation. If this trend should continue through studies of malpractice data in future years, there should be investigation of the reasons for the high percentage of cost and the number of cases against general practitioners.

As to claims for toxic drug reactions, the hazards are slightly greater for general practitioners than for specialists. Toxic drug reactions appear to be accounting for an increasing number of claims.

Too few cases were reported in the categories of blood transfusions, infections following injections and in physical medicine for the results to be meaningful.

In the catch-all category designated as "other" injuries for the purpose of Table 10, are included absence of consent to operate, alleged assault, undue familiarity, operating upon the wrong patient, and other less frequent types of claims. Here, both in number of cases and in the cost of cases, the general practitioner leads the specialist. Again, we are at a loss to explain a pronounced disparity, which is true of the experience of all carriers, North and South. If the trend continues, the problem must be analyzed in future years.

In Table 11 is an analysis of claims with regard to diagnostic errors. This problem has been analyzed specifically for internal medicine, obstetrics and gynecology, orthopedics, radiology and general surgery. Here it does appear clear that claims against general practitioners account for a relatively large number of cases in the fields of internal medicine, obstetrics and gynecology and orthopedics. On the other hand, it would appear that, insofar as costs are concerned, in the fields of radiology and general surgery claims against specialists make up an inordinate amount of the total. All the claims of diagnostic error in proctology, dermatology, neurosurgery and psychiatry were made against specialists.

THE HOSPITAL

In Table 12 malpractice claims are divided to show whether or not the claim is related to an occurrence in a hospital. These figures are represented for AMLICO only, since the H & R and TNC generally did not report whether or not a hospital was involved. At any rate, it is clear from this table that the majority of cases—71 per cent—occurred in the hospitals. This again was similar to data reported in the Alameda-Contra Costa study, in which it was noted that 70 per cent of the incidents occurred in the hospital, and 30 per cent in the physician's office or in the patient's home.

Data for the brief period covered were not sufficient for a study of the incidence of malpractice claims in various hospitals. Since the Alameda-Contra Costa report in 1955 analyzed the strikingly different incidence for malpractice claims among physicians in various hospitals in the Alameda-Contra Costa Counties area, this point was reviewed for the claims coming under the present study. Reports should be made in future studies on this subject, but suffice it to say at this time that—in general—an analysis (not presented in tabular form) revealed the same variation of malpractice claims among the hospitals in the Alameda-Contra Costa Counties area. Indeed, the similarity was striking, and it indicated that hospital medical staffs whose members in general had good records in the earlier study, continued during the last two years to have good records, while, generally speaking, those staffs whose members previously had had poor records continued to have poor records.

Another point studied, but upon which an adequate report cannot yet be made, is a comparison of counties as to the ratio of the number of claim reports by physicians or by patients to the number of suits filed. Here, it is quite clear that in some counties physicians are cognizant of the medical malpractice problem and report potential malpractice claims early and have a consequently low ratio of suits and a low cost ratio in contrast to those counties in which physicians report very few potential malpractice suits, but have a relatively high proportion of suits and consequently a higher cost for their overall program.

TABLE 12.—*Data on Division of Claims Cases (for AMLICO Only) Showing Proportion Related to Incidents Occurring in Hospitals*

	No. of Cases	Per Cent
Cases related to occurrences in hospitals	278	71
Cases related to occurrences elsewhere	116	29
	394	100

SUMMARY

A detailed report of a study of 700 claims is made for a period of approximately one and a half years with the following results:

1. There is no basic difference in the overall malpractice hazard between the general practitioner and the specialist.

2. The medical malpractice hazard depends not upon whether the physician is a general practitioner or specialist, but rather upon the type of professional work done by the physician, with surgical fields accounting for approximately 62 per cent of claims.

3. The greatest number of surgical cases are in the field of obstetrics and gynecology. Orthopedics is next, and general surgery is third.

4. A study of the various specialties for the brief period covered would suggest that neurosurgery is the most hazardous specialty, orthopedics is next, and obstetrics and gynecology is third. There then follow in order: Proctology, radiology, general surgery, dermatology, and general practice. Internal medicine, ophthalmology, otolaryngology, plastic surgery, psychiatry, and urology are at the bottom of the list in this regard.

5. There would appear to be an increased hazard, of minor degree, for the general practitioner with regard to claims related to anesthesia, internal medicine, obstetrics and gynecology, ENT, general surgery, equipment failure, falls in office, toxic drug reactions and in unclassified injuries such as operating without consent, operating upon the wrong patient, alleged assault. On the other hand, the specialist seems to have a greater hazard in the fields of dermatology, neurosurgery, ophthalmology,

orthopedics, pathology, pediatrics, plastic surgery, thoracic surgery, proctology, psychiatry, radiology, and for foreign bodies left in the patient at operation.

6. The general practitioner would appear to have a greater hazard than the specialist for claims of diagnostic errors in the field of internal medicine, obstetrics and gynecology, and orthopedics. Specialists would appear to have greater hazard on this count in the fields of radiology and general surgery.

7. Approximately 71 per cent of malpractice cases are related to incidents that occur in hospitals.

459 Thirtieth Street, Oakland 9 (Sadusk).

REFERENCES

1. Sadusk, J. F., Jr.: An analysis of the professional liability program in Alameda-Contra Costa counties—1946-1954, A.C.C.M.A. Bulletin, May 1955.

2. Sadusk, J. F., Jr.: Analysis of professional factors in medical malpractice claims, J.A.M.A., 161:442-447, June 2, 1956.

A.M.A. Malpractice Film

A FILM entitled *The Doctor Defendant* is now available for distribution. It may be obtained by request from the Film Library, American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois, giving a date as far in advance as possible. An alternate date should also be given.

This film is the second in a series on medicolegal problems being produced by the Wm. S. Merrell Pharmaceutical Company in cooperation with the A.M.A. and the American Bar Association. It is 16 mm., sound, black and white, and runs for 30 minutes. It is dramatic in style and points up ways of preventing professional liability claims and suits.

The film is a "must" for California physicians and should be shown at county medical association and hospital staff meetings.

WOMAN'S AUXILIARY
TO THE CALIFORNIA MEDICAL ASSOCIATION

The Year Ahead

All over the country people are vacationing; it is summer! While you are having fun in the sun, some of us are planning our year's activities. Few ever realize the work behind the finished product, and that someone must spearhead the job to be done. This year it is my responsibility, and I know few Doctors are aware of all of the activities of the Woman's Auxiliary. A small percentage know that their wives are busy with a report or a meeting, but few actually know exactly how we operate. Briefly I shall tell you something about the state auxiliary and my activities.

From May until July a number of things take place. Thirty-four county auxiliaries are sending in lists of officers. I am compiling lists of state officers, chairmen and Advisory Board, for the National Auxiliary, the *Yearbook* and the *Courier*. The *Yearbook* is a publication compiled of officers, reports and messages to help each officer in the counties. Although the California Medical Association office mimeographs this material for us, it is again my responsibility to edit what it contains.

During this period, I am also planning an agenda for a conference we hold in September. This year I have chosen the beautiful Ahwahnee Hotel in Yosemite National Park. Here on the 23rd, 24th and 25th of September some one hundred and twenty-five women will participate in a workshop for state officers, chairmen, county presidents and presidents-elect. As president, I have the privilege to appoint a corresponding secretary, someone in my own county; and so with the able assistance of Mrs. Martin Karr we have planned seven panel discussions with thirty-four county presidents as participants.

The panels cover: Membership, program, nurse recruitment, public relations, legislation, Gems (good emergency mother substitutes) and Ways and Means. There will be reports on Physicians' Benevolence, AMEF, *Today's Health* and *Bulletin*, Civil Defense, *Courier* and Exhibits. A two-and-one-half day conference is not planned in a day, a week, or even a month. It was a year ago that I made my first arrangements with the hotel. We are fortunate to have two members-at-large living in the park and they are making the local arrangements. Many of us will arrive on Sunday to visit and enjoy the beauty of this glacier-cut gorge. On Monday evening the 23rd, we shall have Mrs. Paul C. Craig, President of the Woman's Auxiliary to the American Medical Association, and Dr. Frank A. MacDonald, President of the California Medical Association, as our guest speakers at the banquet given in their honor.

With the Fall Conference behind us, we start in earnest on the fall activities. The county auxiliaries are now meeting, and it is customary for the president to visit many of them. Early in October I visit Monterey-San Benito counties, then on to Contra Costa county, up to Humboldt county, home for a few days, and then to San Francisco county on the 15th; and on the 19th off to Chicago for a week's conference for State Presidents and Presidents-elect. This is a training period for me, just as had been done in Yosemite for county presidents. The month of November finds me spending considerable time in southern California, as well as a visit to Sacramento. With the holidays comes a brief rest after a visit to Fresno and Napa.

With all the traveling by air and sometimes by car, there is constant planning. Between the visits are dozens of letters to be answered, a report for the *Courier*, a monthly article for California Medicine, and now with January fast approaching, the plans for the Spring Board meeting to be held in San Francisco. Though the planning of this meeting takes less time, because it is composed of only board members, nevertheless arrangements must be made with a hotel, various committees must be notified and guest speakers arranged for.

While I am traveling about, various chairmen are busy sending out material on numerous topics; and the nurse recruitment chairman is visiting many of the auxiliaries that I have visited. The legislative chairman is in constant touch with anything new on the legislative front, and keeping the counties advised.

The New Year starts with a visit to Riverside and San Bernardino Counties. Then on to Santa Barbara, and later in the month to Bakersfield. February, south again to visit the remaining counties, and on to San Francisco for the Board meeting. Spring is approaching, and with it plans for the convention. All of us who have ever attended the convention know the hours of preparation that must go into the finished product, and while my contribution to this is negligible, nevertheless the success or failure of the convention will be remembered as my year.

March is the finale as far as visits are concerned. These are all in the San Francisco Bay area and are already scheduled and planned. And so ends the year—only the annual convention remains, where again we gather to report our achievements in behalf of the medical profession.

The Woman's Auxiliary to the California Medical Association is the largest Auxiliary in the United States, and within the membership of some 7,000, we have a wealth of leadership, women who have given years of time and effort to make it the fine organization that it is. Together we shall work to make "Health" a joint endeavor.

Mrs. Leonard D. Offield
President, Woman's Auxiliary to the California Medical Association

NEWS & NOTES

NATIONAL · STATE · COUNTY

LOS ANGELES

Twenty-three noted medical authorities, including Charles W. Mayo, Mayo Clinic; Harry Bakwin, New York; Perry S. MacNeal, Philadelphia; Ben W. Lichtenstein, Chicago; Grantley W. Taylor, Boston; Henry H. Dixon, Portland, Oregon; and Louis A. Buie, Mayo Clinic, will present the Ninth Annual **Scientific Assembly of the California Academy of General Practice** at the Hotel Statler, Los Angeles, November 3-6. Californians to appear on the program include Paul P. Pickering, San Diego; John J. Sampson, Henry D. Brainerd, H. Corwin Hinshaw, Norman J. Sweet, Donald R. Smith, Robert R. Newell, Robert P. Watkins, Seymour M. Farber and Victor Richards of San Francisco. Los Angeles physicians to appear are William L. Hewitt, Sydney M. Finegold, Edward C. Rosenow, Jr., William C. Bradbury, Elizabeth S. Austin and Theodore B. Massell.

* * *

At a meeting in June, the **American Urological Association** elected **Dr. Adolph A. Kutzman** of Los Angeles president for the coming year. Dr. Kutzman is a past president of the western section of the Association.

The 1957-58 officers of the **Los Angeles Radiological Society**, installed September 1, are: President, Dr. Richard A. Kredel; vice-president, Dr. Lewis J. Peha; secretary, Dr. Putnam C. Kennedy; and treasurer, Dr. Robert Rickenberg. Dr. Hubert J. Prichard was elected a member of the executive committee.

* * *

Appointment of **Dr. Emmet D. Hightower** as Central District health officer in the Los Angeles City Health Department was announced recently by the City Health Commission.

SAN BERNARDINO

Dr. Paul E. Swanson, Ontario, was elected president of the San Bernardino County Heart Association at a meeting in June at Arrowhead Springs.

SAN FRANCISCO

An all-day program for medical **disaster preparedness** will be held for members of disaster committees of all county medical associations in California, Friday, October 18, at the St. Francis Hotel, San Francisco. Sponsored by the Committee on Military Affairs and Civil Defense of the California Medical Association, the meeting is planned as a **refresher course** to bring the committee members up to date with changes in programs for dealing with disaster.

Those attending the meeting have also been invited to attend, the following morning—Saturday, October 19—a symposium and field demonstration on Medical Problems of Modern Warfare and Civil Disaster, which will be held at Treasure Island.

* * *

The Program Committee of the San Francisco Academy of General Practice has announced that the **Fourth Annual Surgical Symposia** will be given at Fort Miley Veterans Administration Hospital, 42nd Avenue and Clement Street in San Francisco, each Tuesday at 8 p.m. from September 24 to October 29. The symposia are under joint sponsorship of the University of California School of Medicine and Stanford University School of Medicine. As in the past, practical concepts of surgical technique will be stressed and new advances in surgery discussed. Every effort is made to fit these symposia to the needs of general practice.

Programs may be obtained from Dr. A. F. Fraser, program chairman, 3490 20th Street, San Francisco 10.

SAN JOAQUIN

A grant of $6,500 in support of research work on diagnosis of conditions of the heart was made recently to **Dr. Jobst von der Groben,** of Manteca, by the San Joaquin County Heart Association. This is the second grant made by the Association to the Manteca physician to aid in his work with vectorcardiographic recording of three-dimensional information rather than the two-dimensional electrical impulse data supplied by electrocardiograms.

SANTA CLARA

"Nurses and Patients—Their Mutual Needs" has been selected as the theme of the fifth annual convention of the **California League for Nursing** which will be held in San Jose, October 10 to 12, with headquarters at the Hotel Sainte Claire. A five-year progress report of the growth and activities of the National League for Nursing will be given by Anna Fillmore, general director of the League.

GENERAL

The seventh annual meeting of the **Pacific Coast Fertility Society** will be held November 7 to 10 at El Mirador Hotel in Palm Springs, California. The meeting will be open to all physicians and research workers. Registration fee is $10. There is no fee for interns, residents or armed services medical officers. Advance registration may be made by writing to Edward T. Tyler, M.D., secretary-treasurer, 921 Westwood Boulevard, Los Angeles 24.

* * *

Heart symposia sponsored by the California Heart Association and by the local county heart associations in the three counties involved are to be held in **San Francisco, San Diego and Los Angeles** in early October. The dates for San Francisco are October 2 to 4; for San Diego, October 8; for Los Angeles, October 9 to 10. Details of the programs in each of the cities may be obtained from the California Heart Association, 1428 Bush Street, San Francisco 9, or from the local county Heart Association.

* * *

The 22nd annual convention of the **American College of Gastroenterology** will be held in Boston, October 21 to 23. Then, on October 24, 25 and 26, immediately after the convention, Dr. Owen H. Wangensteen of Minneapolis and Dr. I. Snapper of Brooklyn will again be moderators of the Annual Course in Postgraduate Gastroenterology. The sessions will be held at the Somerset Hotel and in the Joslin Auditorium of the New England Deaconess Hospital. Attendance at the course will be limited to those who have registered in advance.

* * *

The 11th annual meeting of the **Western Society for Clinical Research** will be held Thursday afternoon, Friday morning and Saturday morning, January 30 through February 1, 1958, at Carmel, California.

Further information may be obtained from Dr. Arthur J. Seaman, treasurer of the society, University of Oregon Medical School, Portland 1.

POSTGRADUATE
EDUCATION NOTICES

THIS BULLETIN of the dates of postgraduate education programs and the meetings of various medical organizations in California is supplied by the Committee on Postgraduate Activities of the California Medical Association. In order that they may be listed here, please send communications relating to your future medical or surgical programs to: Mrs. Margaret H. Griffith, Director, Postgraduate Activities, California Medical Association, 417 South Hill Street, Los Angeles 13.

UNIVERSITY OF CALIFORNIA AT LOS ANGELES

Treatment of Emotional Problems in Office Practice. Thursdays, September 19 through December 12. Twenty-four hours. Fee: $50.00.

Surgical Anatomy. Mondays, November 4 through January 20. Twenty hours.†

Postgraduate Medical Lecture Series. Daniel Freeman Hospital, Inglewood, Mondays, September 23 through December 9. Twenty-four hours. Fee: $50.00.

Postgraduate Medical Lecture Series. St. Joseph's Hospital, Burbank, Tuesdays, September 24 through December 10. Twenty-four hours. Fee: $50.00.

Teaching Clinics. Thursdays, September 26 through December 19. Twenty-four hours.†

Selected Topics in Pathological Physiology of the Cardiovascular System. Limited to 25 students. Mondays, October 7 through December 9. Twenty hours. Fee: $60.00.

Removal of Foreign Bodies in Lung and Bronchi. Limited to 12 students. Wednesday and Thursday, October 9 and 10. Nine hours. Fee: $100.00.

Metabolic and Endocrine Diseases. Friday and Saturday, October 11 and 12. Ten hours.† Guest speaker: Philip V. Bondy, M.D., Yale University.

Postgraduate Medical Lecture Series. San Diego County Hospital, San Diego, October 17 through June 19, 1958. Sixteen hours. Fee: $60.00.

Cardiac Roentgenology. Friday and Saturday, October 18 and 19.*

Dermatology. Friday through Sunday morning, October 25 and 26. Sixteen hours.† Guest speakers: Richard L. Sutton, Jr., M.D., University of Kansas; Rudolph L. Baer, M.D., New York University Postgraduate Medical School; Walter B. Shelley, M.D., University of Pennsylvania.

Aviation Medicine. Thursday, Friday and Saturday, October 31, November 1 and 2. Twenty-one hours.†

Photomicrography. Mondays, November 4 through December 9. Twelve hours. Fee: $30.00.

Otolaryngology. Friday and Saturday, November 8 and 9. Twelve hours.†

Arthritis and Rheumatism. Friday and Saturday, December 6 and 7. Twelve hours.†

Contact: Thomas H. Sternberg, M.D., Assistant Dean for Postgraduate Medical Education, U.C.L.A., Los Angeles 24. BRadshaw 2-8911, Ext. 202.

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

Internal Medicine. Monday through Saturday, September 16 to 21. Forty-two hours. Fee: $100.00.

Medicine for General Practitioners. East Oakland Hospital, Tuesday evenings, September 17 to December 10. Twenty-four hours. Fee: $50.00.

Endocrinology. Evening Series in Sacramento, Wednesday evenings, September 25, October 23 and November 20. Fee: $15.00.

Glaucoma. Thursday and Friday, September 26 and 27. Fourteen hours. Fee: $60.00.

Current Advances in Internal Medicine. Wednesday evenings, October 2 through November 13. Ten hours. Fee: $30.00.

Clinical Chemistry for Laboratory Technicians. Tuesday evenings, October 15 through November 19. Fee: $20.00.

Course in General Surgery. Monday to Sunday, October 21 to 27. Forty-nine hours. Fee: $50.00.

Children's Hospital Medical Alumni Seminars. Saturdays, November 9, January 25 and March 29. Fee: $12.00.

Ocular Manifestations of Systemic Disease. Wednesday to Saturday, December 4 to 7.*

Childhood Diabetes. Wednesday to Saturday, December 4 to 7. Twenty-eight hours.†

Orthopedics and Fractures. Mount Zion Hospital, Friday and Saturday, December 6 and 7. Fourteen hours.†

Clinical Cardiovascular Physiology. Friday to Sunday, December 13 to 15. Twenty-one hours. Fee: $30.00.

Congenital Abnormalities of the Cardiovascular and Urogenital System. Tuesday evenings, January 7 to 28, Fee: $20.00.

Dermatology. Friday and Saturday, January 17 and 18, 1958. Fourteen hours.†

Course for Physicians in General Practice. Monday through Friday, March 3 to 7, 1958, Mount Zion Hospital.*

Contact: Seymour M. Farber, M.D., Head, Postgraduate Instruction, Office of Medical Extension, University of California Medical Center, San Francisco 22. MOntrose 4-3600, Ext. 665.

STANFORD UNIVERSITY SCHOOL OF MEDICINE

Morning Clinical Conferences, each Monday, Room 515. *Contact:* D. H. Pischel, M.D., Professor, Division of Ophthalmology, Stanford University School of Medicine, 2398 Sacramento St., San Francisco 15.

Postgraduate Conference in Practical Office Dermatology. September 19 to 21. *Contact:* Office of the Dean, Stanford University Medical School, 2398 Sacramento St., San Francisco 15.

UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES

Cardiac Resuscitation. Sponsored by the Los Angeles County Heart Association each Wednesday throughout the year, 4 to 6 p.m. Residents admitted without fee. Tuition for all other physicians: $30.00. (Each session all-inclusive.)

Basic Home Course in Electrocardiography. One year Postgraduate Series, electrocardiogram interpretation by mail. Physicians may register at any time and receive all 52 issues. Fifty-two weeks. Fee: $100.00.

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†Fee to be announced.
*Hours and Fees to be announced.

Advance Home Course in Electrocardiography. One year postgraduate series, electrocardiogram interpretation by mail. Fifty-two issues: $85.00. Physicians may register at any time.

The Physics of Diagnostic and Therapeutic Radiology. September 6, 1957 through January 24, 1958, 4:00 to 5:00 p.m., Los Angeles County Hospital. Fee: $50.00.

Dermatology. Twelve months full time basic science course beginning September 16. Enrollment limited to 12 qualified physicians. Los Angeles County Hospital. Fee: $1,000.00.

Intensive Review of Internal Medicine. Monday through Friday, 8:30 a.m. to 12:30 p.m., September 23 through October 4. Program scheduled near time Part I of the American Board of Internal Medicine examination in order to accommodate those physicians who desire an intensive review prior to this examination. USC Research Building, 2025 Zonal Ave., Los Angeles. Fee: $65.00.

Symposium on Sexual Problems. September 27, 9 a.m. to 5 p.m., Statler Hotel, Los Angeles. Fee: $25.00.

Practical Electrocardiography. October 3, 4, 5 and 6, Catalina Island. Fee: $75.00.

Pediatric Clinics for the General Practitioner. October 8, 1957, through March 18, 1958, 8:30 to 9:30 a.m. Childrens Hospital. Fee. $40.00.

Bedside Clinics and Set Clinics in Internal Medicine. Thursdays, October 10, 1957, through January 16, 1958, 7:30 to 9:30 p.m. Los Angeles County Hospital. Fee: $65.00.

Conferences in Clinical Endocrinology. Hotel Statler, Los Angeles, November 7 to 9. Fee: $67.00.

Contact: Phil R. Manning, M.D., Director, Postgraduate Division, University of Southern California School of Medicine, 2025 Zonal Avenue, Los Angeles 33. CApital 5-1511.

COLLEGE OF MEDICAL EVANGELISTS

Surgical Anatomy. Dissection, Demonstration and Lectures. Mondays, 10:00 to 12:00 a.m., 1:00 to 4:00 p.m.; Wednesdays, 1:00 to 5:00 p.m., September 30, 1957 through June 4, 1958. 267 hours. Fee: $250.00.

Surgical Anatomy. Upper and Lower Extremities. 117 hours, September 30, 1957 through January 8, 1958. Fee: $125.00.

Surgical Anatomy. Demonstration and Lectures. Wednesdays, 3:00 to 5:00 p.m., October 2, 1957 through June 4, 1958. 74 hours. Fee: $100.00.

Surgical Pathology. Tuesdays, 1:00 to 4:00, October 1, 1957, through June 3, 1958. 99 hours. Fee: $100.00.

For further information write: Chairman, Committee on Postgraduate Medicine, School of Medicine, College of Medical Evangelists, 1720 Brooklyn Avenue, Los Angeles 33.

Vue-Vox Postgraduate Refresher Courses. Courses are made up of four or more half-hour lectures each, recorded on hi-fi magnetic tape and illustrated by 35-mm. filmstrips or slides in full color, and adapted for use on any standard tape recorder and filmstrip or slide projector, automatic or manual.

Contact: Paul D. Foster, M.D., chairman, Committee on Audio-Visual Courses, College of Medical Evangelists School of Medicine, 316 North Bailey St., Los Angeles 33.

CALIFORNIA MEDICAL ASSOCIATION POSTGRADUATE COURSES

POSTGRADUATE CIRCUIT COURSES

SACRAMENTO VALLEY CIRCUIT for Dunsmuir, Chico, Marysville and Auburn, in cooperation with University of California, San Francisco, begins week of October 7, 1957.

NORTH COAST CIRCUIT for Eureka, Ukiah and Napa, in cooperation with Stanford University School of Medicine begins week of October 7, 1957.

POSTGRADUATE INSTITUTES—1958

SAN BERNARDINO, RIVERSIDE AND ORANGE COUNTIES, in cooperation with College of Medical Evangelists, Arrowhead Springs Hotel, San Bernardino County, February 13 and 14, 1958. Chairman: Elmer O. Carlson, M.D., 756 N. Euclid Ave., Ontario.

WEST COAST COUNTIES, in cooperation with UCLA School of Medicine, Golden Bough Theater and La Playa Hotel, Carmel, March 6 and 7, 1958. Chairman: Howard C. Miles, M.D., 535 E. Romie Lane, Salinas.

SAN JOAQUIN VALLEY COUNTIES, in cooperation with Stanford University School of Medicine, Hotel Californian, Fresno, March 20 and 21, 1958. Chairman: Henry L. Tiesche, M.D., 1759 Fulton St., Fresno.

NORTH COAST COUNTIES, in cooperation with USC School of Medicine, Hoberg's Resort, Lake County, April 10, 11 and 12, 1958. Chairman: Alfred A. Thurlow, Jr., M.D., 185 Sotoyome Ave., Santa Rosa.

SACRAMENTO VALLEY COUNTIES, in cooperation with University of California School of Medicine, San Francisco, Tahoe Tavern, Lake Tahoe, June 19 and 20, 1958. Chairman: Robert H. Quillinan, M.D., 616 Alhambra Blvd., Sacramento.

Contact: One of the chairmen listed above, or Mrs. Margaret H. Griffith, Director, Postgraduate Activities, California Medical Association, 417 So. Hill Street, Los Angeles 13. Madison 6-0683.

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AUDIO DIGEST FOUNDATION, a nonprofit subsidiary of the C.M.A., now offers (on a subscription basis) a series of hour-long tape recordings designed to keep the physician abreast of current happenings in his particular field. Composed of practice-useful abstracts from 600 leading journals, with short lectures and editorial comments from prominent physicians, Audio Digest offers programs covering general practice, surgery, internal medicine, obstetrics and gynecology, and pediatrics.

Contact: Claron L. Oakley, editor, 1919 Wilshire Blvd., Los Angeles 57.

Medical Dates Bulletin

SEPTEMBER MEETINGS

KERN COUNTY HEART ASSOCIATION Heart Symposium, September 17, Saddle and Sirloin, Bakersfield, 7:30 p.m. *Contact:* Eldon E. Geisert, executive secretary, Kern County Medical Society, 2603 G St., Bakersfield.

SAN DIEGO COUNTY GENERAL HOSPITAL 11th Annual Postgraduate Assembly, September 18 to 19. Reception for all registrants, 5:00 to 7:00 p.m., September 18. *Contact:* Haddon A. Peck, Jr., M.D., 525 Hawthorne St., San Diego.

SOUTHERN CALIFORNIA SOCIETY OF GASTROENTEROLOGY dinner meeting, September 24, Los Angeles County Medical Association Building, 6:30 p.m. *Contact:* L. M. Asher, M.D., secretary-treasurer, 436 N. Roxbury Dr., Beverly Hills.

Nevada State Medical Association Annual Meeting, Las Vegas, September 25 to 28. *Contact:* Nelson B. Neff, executive secretary, P. O. Box 188, Reno.

American Fracture Association Eighteenth Annual Meeting, El Paso, Texas, September 30 to October 3. *Contact:* H. W. Wellmerling, M.D., 606 Grieshum Bldg., Bloomington, Illinois.

OCTOBER MEETINGS

San Francisco Heart Association 28th Annual Postgraduate Symposium on Heart Disease, October 2 to 4, St. Francis Hotel, San Francisco. *Contact:* Lawrence I. Kramer, Jr., executive director, 250 Geary St., San Francisco 2.

American Cancer Society, California Division Annual Cancer Conference, October 3, 2 to 5 and 8 to 10 p.m., Fairmont Hotel, San Francisco. *Contact:* Gerson Biskind, M.D., chairman, Program Committee, 450 Sutter St., San Francisco 8.

Western Industrial Medical Association Sixteenth Annual Meeting combined with First Western Industrial Health Conference, Biltmore Hotel, Los Angeles. October 4 to 6. *Contact:* E. J. Zaik, M.D., secretary, Western Industrial Medical Association, 740 South Olive Street, Los Angeles 14.

San Diego County Heart Association Seventh Annual Professional Symposium on Heart Disease. U. S. Naval Hospital, San Diego, October 8. *Contact:* O. Martin Avison, executive director, San Diego County Heart Association, 1651 Fourth Ave., San Diego.

Los Angeles County Heart Association 27th Annual Symposium on Heart Disease, Wilshire-Ebell Theatre, 4401 W. Eighth St., Los Angeles, October 9 and 10. *Contact:* Walter S. Thompson, Jr., M.D., chairman, 660 S. Western Ave., Los Angeles.

American Cancer Society, Washington Division Annual Meeting, October 11, Olympic Hotel, Seattle. Board of Directors Meeting, October 12. *Contact:* Mrs. Esther Ristine, Office Manager, 123 W. Harrison, Seattle 99, Washington.

American Society of Anesthesiologists, October 14 to 18, Statler Hotel, Los Angeles. *Contact:* Edward B. Tuohy, M.D., local chairman, 305 S. Westlake Ave., Los Angeles, telephone DUnkirk 7-4236.

Western Orthopedic Association Annual Meeting, October 20 to 24, Santa Barbara. *Contact:* Walter Scott, M.D., secretary, 1321 N. Vermont Ave., Los Angeles 27.

State Board of Medical Examiners Written Examination, October 21 to 24, Sacramento.‡

California Conference of Local Health Officers Semi-Annual Meeting, October 22 to 24, San Francisco. *Contact:* Donald G. Davy, M.D., State Dept. of Public Health, 2151 Berkeley Way, Berkeley.

California Society of Internal Medicine Annual Meeting, October 25 to 27, El Mirador, Palm Springs. *Contact:* Mrs. Mildred B. Coleman, executive secretary, 350 Post St., San Francisco 8.

California Society Internal Medicine Scientific Session, **The Thyroid.** El Mirador, Palm Springs, 2 to 5 p.m., October 26. *Contact:* William L. Cover, M.D., 575 Fifth St., San Bernardino.

NOVEMBER MEETINGS

California Academy of General Practice Ninth Annual Scientific Assembly, November 3 to 6, Hotel Statler, Los Angeles. *Contact:* William W. Rogers, executive secretary, 461 Market Street, San Francisco.

Pan-Pacific Surgical Association Seventh Congress, November 14 to 22, Honolulu, Hawaii. *Contact:* F. J. Pinkerton, M.D., Director General of Pan-Pacific Surgical Association, Room 230, Young Bldg., Honolulu, Hawaii.

Society Graduate Internists Annual Symposium, November 15 to 17, Statler Hotel and Los Angeles County General Hospital. *Contact:* Wallace Frasher, M.D., secretary, 1200 N. State St., Los Angeles.

DECEMBER MEETINGS

American College of Chest Physicians Postgraduate Course on Diseases of the Chest, Ambassador Hotel, Los Angeles, December 9 to 13. *Contact:* Alfred Goldman, M.D., chairman, 416 N. Bedford Drive., Beverly Hills.

1958 MEETINGS

Colorado State Medical Society Midwinter Clinical Session, February 18 to 21, Shirley-Savoy Hotel, Denver. *Contact:* Harvey T. Sethman, executive secretary, 835 Republic Bldg., Denver 2.

California Society of Plastic Surgeons Annual Meeting, March 20 to 22, Del Monte Lodge, Del Monte, California. *Contact:* Benjamin F. Edwards, M.D., 2200 Santa Monica Blvd., Santa Monica.

International College of Surgeons 23rd Annual Congress of U. S. and Canadian Sections 11th Biennial International Congress, March 9 to 13, Hotel Ambassador, Los Angeles. *Contact:* J. M. de los Reyes, M.D., general chairman, 2010 Wilshire Blvd., Los Angeles 57.

American College of Obstetricians and Gynecologists, April 21 to 23, Los Angeles. *Contact:* John C. Ullery, M.D., secretary, 15 South Clark St., Chicago 3.

California Medical Association Annual Meeting, Ambassador Hotel, Los Angeles, April 27 to 30. *Contact:* John Hunton, executive secretary, 450 Sutter St., San Francisco 8, or Ed Clancy, director, Public Relations, 417 South Hill St., Los Angeles 13.

South Dakota Medical Association Annual Meeting, May 17 to 20, Huron, South Dakota. *Contact:* John C. Foster, executive secretary, 300 First National Bank Building, Sioux Falls, S. D.

Western Branch, American Public Health Association Annual Meeting with Canadian Public Health Association, May 18 to 23, Vancouver, B. C. *Contact:* Mrs. L. Amy Darter, secretary-treasurer, 2151 Berkeley Way, Berkeley 4.

American Laryngological Association, May 19 to 20, San Francisco. *Contact:* James H. Maxwell, M.D., secretary, University Hospital, Ann Arbor, Michigan.

American Broncho-Esophagological Association, May 21 to 23, San Francisco. *Contact:* F. Johnson Putney, M.D., secretary, 1719 Rittenhouse Square, Philadelphia, Pa.

California Heart Association Annual Meeting, Scientific Session and Directors Meeting, Hacienda Motel, Fresno, May 23 to 25. *Contact:* J. Keith Thwaites, executive director, 1428 Bush St., San Francisco.

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‡Contact: Louis E. Jones, M.D., 1020 N Street, Sacramento 14.

INFORMATION

Preparation to Combat Asiatic Influenza

A PROGRAM to combat a possible outbreak of Asiatic influenza was adopted late in July by the Board of Trustees of the American Medical Association.

The Board has set up a special Committee on Influenza to implement the information and operational phases of the A.M.A. program. It consists of existing Committee on Civil Defense of the Council on National Defense (Drs. Harold C. Lueth, Cortez F. Enloe, Carroll P. Hungate, David Henry Poer, Max L. Lichter, Roscoe L. Sensenich and Charles W. Steele) augmented by two members of the Board —Drs. Hugh H. Hussey, Jr., and James Z. Appel. Dr. Lueth is chairman.

POLICY ON VACCINATION

As to the question of vaccination, the Board of Trustees of the A.M.A. voted to cooperate with the United States Public Health Service in providing the public with information as to the need of vaccination against Asiatic influenza, provided the vaccine is safe and effective and there is need for widespread immunization.

Following the action of the Board, a group of Trustees met with the Secretary of Health, Education and Welfare and the Surgeon General of the U.S.P.H.S. and approved [July 22, 1957] the following statement for publication:

"The Public Health Service, in cooperation with the medical profession, will stimulate and promote a nationwide voluntary program of vaccination against the prevalent strain of influenza. It will not, however, request federal funds for the purchase or administration of vaccine—except for its own legal beneficiaries. The State and Territorial Health Officers and the American Medical Association have jointly assured the Surgeon General that community resources, both public and private, will be mobilized to provide vaccinations for persons who are unable to pay for such protection."

The program stemmed from a meeting called July 9 at A.M.A. headquarters in Chicago to draft recommendations. Dr. Harold C. Lueth presided over the meeting, which was attended by Dr. William H. Stewart of the Public Health Service and Dr. Madison D. Brown of the American Hospital Association. A.M.A. representatives included Dr. George F. Lull, Dr. Austin Smith, Dr. Edward Pinckney, Mr. Leo Brown, Mr. John Bach, Mr. Tom Hendricks and Mr. Frank W. Barton.

Excerpts of a report issued from that meeting follow:

Summary of Data Reviewed and Factors Considered

Through the Public Health Service and the World Health Organization, reports of the disease, worldwide, are received daily. Regular weekly reports, morbidity and mortality, reflect the current situation. There are several reports of influenza occurring in military bases in the Continental U. S. Also, some reports of influenza epidemics have been suggested in civilian communities. However, they have not been substantiated by virus identification.

A brief summary of the influenza epidemic characteristics includes:

(a) Infective agent—virus Japan 507 of 1957.

(b) Incubation period—probably 1 to 2 days.

(c) Incidence—variable, figures not entirely reliable—15 to 20 per cent.

(d) Contagious period—uncertain, 1 to 5 days.

(e) Transmission—droplet infection.

(f) Symptoms—fever, prostration, headache, lassitude.

(g) Signs—coryza.

(h) Course—generally short duration, 3 to 5 days.

(i) Complications—rare, not serious except in the very young, old or those debilitated.

(j) Treatment — no specific therapy, usually symptomatic; antibiotics of little value; good nursing care.

(k) Mortality—figures unreliable, probably quite low except in the young, old or those debilitated.

There are inherent problems in attempts to draw conclusions from the influenza epidemics of the Far East and its appearance in the Continental United States. In the Far East where overcrowding, malnutrition, insufficient sanitation and presence of other human diseases are prevalent, the situation differs from that in the United States. The appearance of the disease among United States military personnel cannot be used, without modification, in forecasting probable effects among civilian communities and personnel as factors such as earlier immunization of military personnel with influenza vaccine, strict military control, regular sick calls, ready availability of medical and hospital care have their influence on the disease. Experiences in the Far East among military and civilian personnel are, however, the only guides that are currently available.

Consideration must be given to the medical, economic, and political impact of any epidemic that appears suddenly and attacks 15 to 20 per cent of the population. The A.M.A. would do well to have sound medical plans and an effective organization to meet the medical aspects of an influenza epidemic. The rapid onset of the epidemic makes it mandatory to have plans prepared well in advance and to see that local medical societies are cognizant of the magnitude of the problem prior to the occurrence of the epidemic. It is evident from experience gained in poliomyelitis outbreaks that the public looks to the medical profession and the Public Health Service for leadership in these emergency situations. It is imperative that the A.M.A. have a plan that is flexible enough to cope with a quick-spreading influenza epidemic. The plan must be realistic and suitable for implementation by state and local county medical societies.

Reports indicate the degree of prostration is such that patients become bedridden within a short period of time. In the military, the majority of patients were hospitalized. Among civilian groups, greater reliance must, of necessity, be placed on home care as the current high occupancy rates in civilian hospitals does not permit large numbers of influenza patients gaining admissions to hospitals. Special situations would develop in civilian groups if the disease occurs in camps, large meetings, or assemblies as too frequently there are not adequate reserve facilities available for providing bed care for large numbers of patients who suddenly become ill. Each community should make a serious study and have suitable plans to cope with epidemics that might occur.

The use of vaccine in an influenza epidemic poses many problems. There may be difficulty in obtaining a large enough quantity of vaccine of this specific strain early enough so that it may be administered in sufficient time to evoke an adequate protective antibody response. There is question as to type specificity of vaccine. There would be difficulty in administering the vaccine depending upon public and professional acceptance. If it were a mild influenza epidemic, it is quite likely that the medical profession would find it difficult to use the supply manufactured. If it were a sudden large-scale epidemic, there would be a great clamor for the vaccine at a time when the epidemic is at its peak and when the vaccine would be the least effective. This would present a difficult problem. Method of control of the vaccine would present all of the problems encountered by the distribution of the Salk poliomyelitis vaccine.

Antibiotics are generally agreed to be ineffective in virus infections. It is felt that there would be a certain amount of public demand for the use of antibiotics in influenza epidemics. Since it is well known that primarily influenza infections often are followed by secondary bacterial infections, a degree of justification in the use of antibiotics can be advanced.

In addition to the resources within the Association there are a number of other resources available. The Surgeon General of the Public Health Service has pledged the resources of the Public Health Service to the A.M.A. in the matter of furnishing information and assistance preceding and during the period of an influenza epidemic. These include: Technical reports giving incidence rates, nationwide and worldwide; resources for the isolation and identification of infecting agents; sending of special epidemiologists to areas upon request for studies in the spread and control of epidemics; assistance to the state and local committees upon request for augmentation during an influenza epidemic.

The Department of Defense can be requested to furnish information concerning its experience in influenza cases among the military personnel and in their clinical handling of these patients. The Commission on Influenza of the Armed Forces Epidemiology Board has made continuing studies on the problem of influenza and could be requested to furnish specific information. The World Health Organization has a steady flow of information on reported influenza cases as they occur throughout the world.

Assumption as to Alternate Courses Epidemic May Take

Based upon the foregoing information reviewed by the study group on July 9, it appears that should an influenza epidemic break out in the United States, it would take the following alternate courses:

1. Few minor sporadic outbreaks this summer but disappearing without large-scale epidemic;
2. Explosive outbreak of influenza in the summer of 1957 (before September 1) with same attack rate and mortality rate as currently exists;
3. Few minor sporadic outbreaks this summer with explosive outbreak in fall or winter of 1957 (after September 1) with same attack rate and mortality rate as currently exists;
4. Explosive outbreak in fall or winter with high attack rate and high mortality rate (similar to 1918).

Operational Phase

1. Immediate steps should be taken to inform state and county medical societies of the impact of influenza epidemics on normal professional services.
2. The A.M.A. should suggest that state and

county medical societies prepare or develop adequate stand-by programs and plans to cope with any such epidemics.

3. In the formulation of these plans, consideration should be given to expanded professional care through the utilization of all medical personnel, regardless of type of practice.

4. Plans should include mobilization of other professional resources such as nurses, nurses' aides, pharmacists, and others.

5. Action to make full use of hospital facilities should be explored, such as curtailment of elective surgery, diagnostic studies, etc. The use of Federal Civil Defense Administration Emergency Hospital units might be required.

6. Recommend that state and local programs be coordinated with public health agencies and state and local health departments. There should be close cooperation concerning diagnosing and reporting influenza cases. Joint planning may be advisable in many areas.

Influenza

LEROY E. BURNEY, M.D., *Surgeon General,*
U. S. Public Health Service

During recent weeks the eyes of the medical profession have been on the influenza epidemic which swept through the Far East. Thus far only sporadic outbreaks have occurred in this country, affecting several thousand people. Experts in the field say there is little question that we will have an epidemic in this country sometime during the fall and winter months.

Since 1948 the Influenza Study Program sponsored by the World Health Organization has maintained a system of reporting specific diagnoses of influenza in the United States, Canada, South America and Europe.

The current epidemic was first reported in Hong Kong and Singapore in late April, 1957. Epidemics followed rapidly in Taiwan, the Philippines, the Malay States, Japan, India and other areas. Virus sent to this country for antigenic analyses were found to be type A, but antigenically different from any previously known A strains in the hemoagglutination inhibition test. Animal antisera prepared against type A strains did not inhibit or neutralize the new variant and no protective antibody could be demonstrated in sera from human beings repeatedly vaccinated with previously prevalent type A virus.

Information to date suggests that little protection against the new virus is gained by previous vaccination with existing influenza vaccine.

Beginning June 2 a series of influenza outbreaks were reported among ships which had been berthed in Narragansett Bay, Newport, R. I. Spread of the epidemic was erratic. Subsequent infections have been reported in San Diego, Monterey, Davis and San Francisco, Calif.; Cleveland, Ohio; Lexington, Ky.; Valley Forge, Pa.; Salt Lake City, and Grinnell, Iowa.

Clinical and Public Health Aspects

The experience in Asia and in the United States provides no basis for predicting an increase in severity of infection in the coming fall and winter or during the next year or two. The present concern arises largely from the possibility that a more virulent variety of the Asian type may emerge. The severity of the 1918 epidemic is believed to have been due to some mutation which exposed the population to a virus or viruses radically different antigenically from those strains to which they had been previously exposed.

Influenza is usually characterized by abrupt onset, prostration, fever up to 104, headache, myalgia, cough and sore throat. X-ray examinations of the chest usually show no abnormal findings. Leukopenia is common in uncomplicated cases. The febrile period usually lasts three to five days, following which the patient may complain of extreme weakness for several more days.

In laboratory diagnosis of individual cases, the virus may be isolated from secretions of the nose and throat early in the course of the illness. The procedure consists of inoculating chicken eggs which have been incubated for about ten days, and recovering the virus in the fluids of the embryonic sac.

Paired specimens of blood, one taken in the acute phase and the other ten days to two weeks later, may be used for serological tests. A fourfold or greater rise in antibody titer is regarded as an indication of influenza infection. Since neither of these laboratory procedures can be completed while the patient is still acutely ill, they are of little value to the physician in prescribing treatment. Such tests are necessary, however, to confirm the presence or absence of influenza in a community.

Immunological Aspects

Studies in the military reveal that a properly conditioned vaccine is 70 per cent effective under epidemic conditions and that reactions to the vaccine are quite rare. Individuals known to be sensitive to egg are *not* given the vaccine since virus is grown in embryonated eggs.

The manufacturers of vaccines are able to produce a satisfactory monovalent vaccine (containing the Asian strain) in sufficient quantity for civilian use

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This is a condensed version of an article appearing in the *Journal of the American Medical Association.*

this winter. They are currently working on a large-scale production basis.

Present Considerations

Isolation of causative virus has been made prior to the appearance of influenza in the United States; thus for the first time in history we are in the fortunate position of being ahead of an impending epidemic of influenza. It seems probable that influenza will continue to spread for the remainder of the summer months but will not be highly epidemic in this country until fall and winter when outbreaks may be anticipated. While the disease will probably be mild there is always the outside possibility of a repeat of the 1918 epidemic. There is a further possibility that the virulence of the infection as reflected in case-mortality rates will increase. Even though these are still only possibilities, any preparations which need to be done to meet these eventualities must be accomplished now. After a pandemic starts it will be too late.

At the invitation of the WHO, a plan for investigation of influenza outbreaks in foreign countries has been developed by the influenza commission of the Armed Forces Epidemiological Board. Teams making the studies will be particularly interested in determining (a) the properties of the virus, (b) complete clinical descriptions, (c) whether a bacterial component is associated with the illness, and (d) epidemiologic aspects.

The American Medical Association has already announced a program designed to offset the severe strain placed on medical personnel when so many people suddenly become ill.

Finally, in recent years the nature of influenza in this country has not warranted the use of influenza vaccine except on a group basis to minimize absenteeism or in so-called priority groups. However, the present influenza epidemic, with its rapidity of spread and high attack rate is sufficiently unusual to press for immunization against the new strain of influenza virus. As a properly constituted vaccine is the only preventive for this disease, the Public Health Service with the Association of State and Territorial Health Officers and the American Medical Association plans to promote the use of the vaccine as soon as it becomes available. To accomplish this we plan to embark upon an educational and promotional campaign to encourage all persons who want it to seek influenza vaccine on a voluntary basis. Any such campaign must be conducted in an orderly fashion to avoid confusion and hysteria in the public and will call for the combined efforts of all of us.

In summary:

1. Influenza has been known for centuries under a variety of names but except for the pandemic of 1918, the illness was regarded lightly.
2. For the past 25 years it has been possible to incriminate certain strains of Type A virus and Type B virus as causative agents of cyclic outbreaks of influenza.
3. The current epidemic in the Far East and sporadic outbreaks in the United States and elsewhere are caused by a new strain of Type A virus popularly known as the Far East strain.
4. There is a distinct probability that the current influenza epidemic will increase and develop into pandemic proportions by late fall or winter. Also there lurks the possibility of an increase in virulence of the infection as reflected in case-mortality rates.
5. A properly constituted vaccine containing the new strain of Type A virus represents the only preventive tool at our command.
6. Influenza vaccines have been proven effective and safe in controlled studies conducted by the military.
7. The Public Health Service, in cooperation with the State and Territorial Health Officers and the American Medical Association will stimulate and promote a nationwide voluntary program of vaccination against the prevalent strain of influenza.

The Private Physician and Public Welfare

DONALD K. FREEDMAN, M.D.,* San Francisco

In July 1957 Governor Knight signed legislation providing for the purchase of medical care for public assistance recipients in California. Welfare clients will now secure more of their medical services, as other citizens do, in offices of private physicians. Behind this is a 20-year developmental period leading to this program for improving the health of persons receiving welfare aid.

In 1935 the initial social security legislation in this country was enacted by Congress to meet the economic needs of persons in distress. From then until 1950 only one significant change in the Social Security Act occurred, the addition of survivor benefits in 1939. Since 1950, however, Congress has amended the Social Security Act at three sessions. The most significant of these changes, aside from increases in insurance coverage and amount of benefits, reflected Congressional concern for persons with medical problems. In 1950 Congress added a public assistance category for the totally and permanently disabled, provided that recipients who were patients in public medical institutions could continue to receive assistance payments, and added the "disability freeze" provision whereby a worker in covered employment had his rights to receive retirement benefits fixed at the time of disability.

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*Dr. Freedman is Area Medical Consultant, State Department of Social Welfare, San Francisco.

In 1956 Congress added a provision for insurance benefits to be paid to all disabled persons in covered employment upon reaching age 50. Further, it made specific provision for payment of medical care in behalf of public assistance recipients and created a separate and additional source of federal funds for this purpose (P.L. 880). These additions gave recognition to the fact that a major cause of dependency is sickness or disability.

The new state law establishes a Medical Care Fund created by equal federal and state contributions, totaling three dollars a month for each child and six dollars a month for each adult receiving public assistance (Aid to Needy Children, Aid to the Blind, and Old Age Security programs only). This amount is placed in a pooled fund for use throughout the state without specific limitation as to county or the amount that may be used for an eligible recipient. In addition to the matched funds, California is contributing to the fund for medical care of children in institutions, and some others, although unmatched by federal contribution. Clients receiving Aid to Totally Disabled and those on county general relief are not covered under the medical care program.

The size of the fund has been estimated for the initial full year of operation at twenty-nine and one-half million dollars. Inasmuch as this will not purchase all medical care that may be required by eligible recipients, a large portion of whom are over 65 years of age, limitations have been placed by the State Board of Social Welfare. These limitations relate to services that do, or do not, require prior authorization from the county welfare department. For example, *without* prior authorization, physicians may provide or prescribe three home or office visits for any one illness if within 90 days of the first visit, drugs (U.S.P., N.N.R., N.F.), urinalysis and blood counts, visiting nurse services up to five visits. *With* prior authorization, the above limitations do not apply, and services such as elective office surgical procedures, radiologic services, complete physical examinations and rehabilitation may be provided. No payments will be made for hospital care, maternity cases, treatment of venereal disease or mental illness.

In order to use the limited funds effectively and fairly, a medical consultant will be employed by each county welfare department. His duties will include some which are administrative, consultative, clinical, educational and professional. He will be in touch with practicing physicians regarding authorizations requested for treatment, for diagnostic tests or for special consultation. He will assist the physician and social worker in securing other medical or rehabilitation services as recommended. His role, therefore, is broad and vital to the program.

The main purpose of the program is to extend needed medical and other health services beyond those currently available to recipients of public welfare. Consequently, county welfare department staffs, aided by the medical consultant, will acquaint clients with community services, whenever it is deemed advisable, such as mental hygiene and public health clinics, health department services, rehabilitation centers and so forth. The Medical Care Fund will be used for the services of private physicians and other vendors such as dentists, visiting nurse associations, clinical laboratories and pharmacists. Clients will have free choice of physician.

For some time, clients with outside income have been able to purchase medical care independently. Such outside income includes that received from Old Age and Survivor's Insurance, responsible relatives, earnings, public or private pension plans, insurance policies, union welfare plans and workmen's compensation. The continued use of such funds will extend the Medical Care Fund by several million dollars.

As required by law, an advisory committee to the department has been appointed by the State Board of Social Welfare. The nine members are representative of organizations and groups concerned with providing medical care. Representing the medical profession are Doctors William F. Quinn, Los Angeles; Donald C. Harrington, Stockton, and Samuel R. Sherman, San Francisco. This committee will meet regularly to consult with the department on major problems of the medical care program as they arise.

For many years, public assistance recipients have been exposed to wide variation in type and quality of medical care. Efforts of the social work profession have persistently sought to help clients to get medical and rehabilitation services as needed. In this connection the expanded program offers new and unusual opportunities to the medical profession—*i.e.*, including welfare clients as private patients. It provides the physician with the chance of expediting treatment and minimizing dependency, and of promoting the health of children. Need for hospitalization in some cases will be prevented by the increased availability of medical care, while in other cases the patient may be discharged earlier with the possibility of physician and nursing care in the home. This saving should offset some of the county expenditures for hospital and medical care. Finally it will effect a private doctor-patient relationship amongst a group previously dependent almost totally upon public medical care.

Guides to Relationship with Labor Funds

At a joint meeting in April the Council on Industrial Health and the Council on Medical Service of the American Medical Association approved guides to relationships between state and county medical societies and the United Mine Workers of America Welfare and Retirement Fund.*

After careful consideration, the Board of Trustees voted to approve the report of the two councils and to submit the guides to the House of Delegates for its consideration and action.

The Reference Committee on Miscellaneous Business to which this report was referred by the Speaker of the House made this special recommendation concerning it:

Your committee wishes to recommend that the Board of Trustees study the feasibility and possibility of setting up similar guides for relations between state and county medical societies and other groups, such as management plans, other labor unions, etc.

***Note:* With the amendments suggested by the Reference Committee, the "Suggested Guides" adopted by the House read as follows:**

THE Committee on Medical Care for Industrial Workers was established over seven years ago. Among its early studies were those on direct medical service plans among employed groups (union and management health centers) and state insurance laws providing cash benefits for temporary disability. Concurrently, the committee was actively concerned with the medical-hospital problems in the bituminous coal mining areas. The latter stemmed largely from the recognition given by the House of Delegates in July, 1946, to the National Bituminous Coal Mine Wage Agreement.

A fact-finding survey was subsequently conducted "covering all aspects of living in the mine areas." Rear Admiral Joel T. Boone headed the medical survey of these areas and was accompanied by American Medical Association representatives among others.

A report entitled "Medical-Hospital Problems in the Bituminous Coal Mining Areas" was published in the January 31, 1953, issue of *The Journal of the American Medical Association* as the report of the conference held in Charleston, West Virginia, September 6 to 7, 1952. This conference had been sponsored by the Committee on Medical Care for Industrial Workers, which by that time was a joint committee of the Council on Medical Service and the Council on Industrial Health. To quote from that report, "One of the direct results of this survey was creation of the UMWA Welfare and Retirement Fund to be financed from a royalty of 5 cents [since increased to 40 cents] per ton of coal mined and paid for by the consumers."

Among the activities supported by this UMWA Welfare and Retirement Fund is the program for the medical care of coal miners and their dependents. In May, 1952, representatives of the Council on Medical Service and the Council on Industrial Health and the Committee on Medical Care for Industrial Workers accompanied representatives of the Fund in a survey of the medical care facilities in the area.

Out of this and other surveys, as well as four major Conferences on Medical Care in the Bituminous Coal Mining Area, better understanding among the parties concerned resulted, although serious problems remained. The question of understanding the nature of the United Mine Workers medical care program, of adjusting to it and adapting it to other community efforts, created continuing problems in the relationships between the Fund, individual physicians and the medical societies concerned. The creation of medical society liaison committees to work with Fund Area Medical Administrators and other Fund representatives emerged as a promising element in the solution of problems.

PRESENT ISSUES

The main issue which faces physicians today is the impact of the intervention of a third party—in this case the United Mine Workers Fund—on the physician-patient relationship with respect to (1) the free choice of physician by beneficiaries of the Fund, and (2) the method of remuneration of physicians.

The following is a brief account of the events which seem to have sharpened the issues:

Free Choice: The medical profession believes that licensed physicians should be accepted as qualified to perform such services as they believe themselves competent to perform and are so considered by their professional peers unless proved otherwise; similarly, hospitals should be judged on their individual performances.

The Fund has frequently assumed the prerogatives of judging treatment given by physicians, the qualifications of physicians for hospital appointments, the selection of hospitals, and the selection of hospital staffs.

The Fund claims that on the basis of experience it has found some physicians were providing poor quality care and were performing unnecessary surgery, were permitting excessive hospitalization, or were overcharging. In some areas the Fund has sought to correct what it claimed were abuses by limiting payments for surgical care for Fund beneficiaries to physicians who are board-certified or board-eligible specialists or members of the American College of Surgeons. The Fund has thereby excluded from its approved lists other physicians in some areas who are admittedly well qualified to perform such services. Furthermore, the Fund has also excluded from its approved lists some surgeons who are board certified. The Fund has also removed some accredited hospitals from its lists of acceptable institutions and retained some which are not accredited.

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*In the interest of brevity the term "Fund" is used here to refer to the medical administration (Executive Medical Officer, including Area Medical Administrators and other medical representatives) of the United Mine Workers of America Welfare and Retirement Fund, except where "the Fund" is clearly meant; the term "medical society" is used to refer to the county, state, or regional medical society; and the term "Fund beneficiaries" is used to refer to miners and their dependents.

Remuneration: The Fund began its program by paying all physicians on a fee-for-service basis and still continues this method in some areas. In some areas, however, the Fund has employed or evolved methods of payment other than fee-for-service. The Fund has developed what it calls the "block-for-service" payment or contract arrangement, and has encouraged salary and retainer forms of remuneration, all of which many physicians believe are undesirable. A large number of physicians also believe that the fee-for-service remuneration is the method most conducive to good medical care. In some areas the medical profession believes the Fund should reimburse the patient instead of paying the physician for services rendered.

Although these issues have assumed, in some areas, the appearance of new developments, they have, in fact, been problems for discussion since the early days of the Fund and other third party programs.

In fact, in May of 1948 the representatives of the Council on Medical Service and the Council on Industrial Health made a number of recommendations to Dr. Sayers, former medical director of the UMWA Fund; among them are the following*:

"This program should . . . make available the best possible medical and hospital care (or perhaps health care) to the miners and their families;

"A free choice of physicians and hospitals by the patient should be preserved in all communities where a choice can exist;

"A fee-for-service method of payment of physicians should be maintained except under unusual circumstances."

LIAISON COMMITTEES

Liaison committees created for the purpose of resolving differences between the medical profession and the Fund have not been used always by the Fund and sometimes have not functioned effectively. The attitudes of some Area Medical Administrators and other Fund representatives and/or of members of liaison committees are said to have served as barriers to cooperation and mutual understanding in several instances.

On the other hand, in Pennsylvania the liaison committee and the Fund did create an agreement designed to set up some guides for the relationship between the medical profession and the Fund. This was known as the Pennsylvania Agreement.†

The Pennsylvania Agreement was greeted with enthusiasm by the Committee on Medical Care for Industrial Workers for its seemingly realistic approach to perplexing problems of these relationships. The fact that the Pennsylvania Agreement was abrogated by the Medical Society of the State of Pennsylvania on October 23, 1956, and other states are reassessing their relationships with the Fund, has greatly complicated the task of the Committee on Medical Care for Industrial Workers.

INTRODUCTION TO GUIDES

In response to requests from various medical societies and the Executive Medical Officer of the Fund, the Committee on Medical Care for Industrial Workers has developed and is setting forth the following "Suggested Guides to Relationships Between State and County Medical Societies and the United Mine Workers of America Welfare and Retirement Fund."

The preparation of these Suggested Guides is in keeping with the directions given to the Committee on Medical Care for Industrial Workers by the House of Delegates at the June, 1955, meeting in Atlantic City.‡ At that time the House adopted a resolution to the effect "That all other controversial matters arising between the UMWA Welfare and Retirement Fund and the participating physicians which cannot be reconciled at the local or state level shall be promptly referred to the Committee on Medical Care for Industrial Workers of the Council on Medical Service and the Council on Industrial Health of the American Medical Association."

The committee wishes to point out that all parties should endeavor to utilize the Suggested Guides; they surely will fail in their purpose if they are used by one party only or if some suggestions are followed and others ignored. The application of these guides, however, in any given situation and the exact working procedures are to be decided upon between the county and state medical societies and the Fund in light of varying local conditions and applicable laws.

GENERAL GUIDES

The fundamental concepts on which the recommendations are based are:

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*Published in *The Journal of the American Medical Association,* January 31, 1953, Vol. 151, No. 5, pp. 407-412.

†Published in *The Journal of the American Medical Association,* May 12, 1956, Vol. 162, No. 2, pp. 155 and 164-165.

‡Published in *The Journal of the American Medical Association,* July 9, 1955, Vol. 158, No. 10, pp. 842-843.

1. All persons, including the beneficiaries of a third party medical program such as the UMWA Fund should have available to them good medical care and should be free to select their own physicians from among those willing and able to render such service.

2. Free choice of physician and hospital by the patient should be preserved:

a. Every physician duly licensed by the state to practice medicine and surgery should be assumed at the outset to be competent in the field in which he claims to be, unless considered otherwise by his peers.

b. A physician should accept only such terms or conditions for dispensing his services as will insure his free and complete exercise of independent medical judgment and skill, insure the quality of medical care, and avoid the exploitation of his services for financial profit.

c. The medical profession does not concede to a third party such as UMWA Welfare and Retirement Fund in a medical care program the prerogative of passing judgment on the treatment rendered by physicians, including the necessity of hospitalization, length of stay, and the like.

3. A fee-for-service method of payment for physicians should be maintained except under unusual circumstances. These unusual circumstances shall be determined to exist only after a conference of the liaison committee and the representatives of the Fund.

4. The qualifications of physicians to be on the hospital staff and membership on the hospital staffs is to be determined solely by local hospital staffs and local governing boards of hospitals.

MEDICAL SOCIETY RESPONSIBILITIES

1. The members of the medical profession have the responsibility for rendering good medical care to all people, including beneficiaries of the UMWA Welfare and Retirement Fund.

2. Each local medical society, in light of the needs of the community, should develop a mechanism for supplying the Fund Area Medical Administrator with the names of physicians desiring to participate in the Fund's medical care program, indicating the field in which each physician wishes to practice.

3. The medical society should create active liaison committees with periodic and established times for meetings. Medical societies should appoint physicians on these committees who are interested in the problems and willing to devote time to them.

4. The liaison committees should be established on a county, regional, or state level as may be necessary. Local problems should be handled locally and, if not resolved there, referred to successively higher levels until they have been resolved.

5. The liaison committee should be charged with the prompt and energetic handling of any problem presented to it which has to do with relationships or dealings between the medical profession and the Fund. Success in the implementation of these Suggested Guides depends in a large part upon the performance of the liaison committees.

6. To protect the Fund and its beneficiaries, the medical society should institute, through its liaison committee, measures to correct any confirmed abuses called to its attention.

7. A medical society and a liaison committee should not engage in unilateral action in any matter which affects the relationships between the medical profession and the Fund without prior consultation with the Fund representatives.

8. When an agreement is drawn up between a medical society and the Fund, it should include a provision which would permit any portion(s) to be referred to higher levels without nullifying the entire agreement.

9. All controversial matters arising between the UMWA Welfare and Retirement Fund and the participating physicians which cannot be reconciled at the local or state level should be promptly referred to the Committee on Medical Care for Industrial Workers. This appeal mechanism is available to any party concerned.

FUND RESPONSIBILITIES

1. The Fund should keep statistical data on medical care provided to the beneficiaries by the physicians. The Fund should present to the liaison committee any claims such as poor medical care, overcharges, and unnecessary surgery, with substantiating evidence.

2. The Fund should utilize the medical society liaison committees on medical questions relating to the operation of the program. Success in the implementation of these Suggested Guides depends largely upon the utilization of the liaison committees.

3. Representatives of the Fund should not engage in unilateral action in any matter which affects the relationships between the Fund and the medical profession without prior consultation with the liaison committee.

4. Every physician duly licensed by the state to practice medicine and surgery should be assumed at the outset to be competent in the field in which he claims to be, unless considered otherwise by his peers.

5. When an agreement is drawn up between a medical society and the Fund, it should include a provision which would permit any portion(s) to be referred to higher levels without nullifying the entire agreement.

6. All controversial matters arising between the UMWA Welfare and Retirement Fund and the participating physicians which cannot be reconciled at the local or state level should be promptly referred to the Committee on Medical Care for Industrial Workers. This appeal mechanism is available to any party concerned.

Public Prenatal Care in California

LACK OF PRENATAL CARE obtained by mothers delivered in county hospitals is still a serious public health problem in California, associated as it is with higher death rates and hospitalization costs for these same mothers and their babies. Recent attention was

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From the State Department of Public Health, Bureau of Maternal and Child Health, 2151 Berkeley Way, Berkeley 4, February, 1957.

focused on this deficit when California took national leadership to explore the prevention of premature births which continue to be associated with two-thirds of early infant (neonatal) deaths, one-half of fetal deaths, much hospitalization of abnormal newborns, and increased numbers of congenital defects, cerebral palsy, mental retardation and other long-term crippling effects. Since the provision of expensive incubators, oxygen and specially trained nurses to help these small infants survive after birth seemed to be reaching a point of diminishing returns, prevention of premature birth itself appeared the most promising approach to significant decrease in death and disability in the future.

During the spring of 1952, the State Department of Public Health sponsored two working conferences to explore such preventability. The conferees acknowledged the many complex causes of prematurity but agreed, as did the World Health Organization's Expert Committee in 1950, that good prenatal (medical, nutritional and social) care was an effective preventive measure that should be universally applied. They recognized the higher risks of low income mothers and babies delivered at county hospitals and recommended that a detailed study of public prenatal care be made.

This is a report of such a study conducted during 1954-56 by the State Department of Public Health and the California Conference of Local Health Officers. The information was obtained through a personal visit by a physician and a medical social worker from the Department to each local health department and county hospital providing prenatal care. Details of the methodology are available upon request.

THE PROBLEM

One of every eight newborns in California is delivered in a county hospital, 70 per cent of them in the eight largest hospitals. The prematurity rate in county hospitals is 50 per cent higher than in private hospitals, the neonatal death rate of infants born in county hospitals is 60 per cent higher than of infants born in private hospitals and the maternal death rate in county hospitals is 200 per cent higher than in private hospitals. The estimated cost to county government for hospital care of premature infants alone is $1,300,000 per year. No attempt was made to estimate the considerable cost to counties of other preventable maternal and newborn complications and deaths.

PRESENT SERVICES

Every county makes some provision for prenatal medical care of county patients, larger counties through special prenatal clinics and smaller counties through care in general clinics or the county physician's office. Such care often falls into the borderland between local health departments and county hospitals. About 5 per cent of California's mothers receive it largely from local health departments and about 5 per cent from county hospitals, although there are usually some services from both. The geographic distribution of these clinics when considered in relation to city, district and private clinics and federal hospitals is reasonably satisfactory although there remain some areas of the state, predominantly rural, where problems of distance and transportation have not been solved.

THE DEFICIT IN QUANTITY

The actual quantity of prenatal care is difficult to estimate since at most clinics such basic information as the number of patients seen each year was not available. Most county hospital staffs estimated that between 10 and 40 per cent of mothers delivered in their hospitals had not received any prenatal care. Against their recommended 10 to 12 visits per pregnancy, most clinics actually provide between two and five visits per birth.

THE DEFICIT IN QUALITY

The usual resistance of quality of care to measurement was but superficially dented in this survey. In the absence of current federal or state standards for prenatal care, only a few well-established minimum criteria, including types and amounts of professional personnel, were examined.

Personnel. The average scheduled physician time in specialized prenatal clinics ranged from three to 45 minutes per visit. In many clinics the physicians were predominantly interns and residents with little supervision. Obstetricians and general practitioners were often not paid for their services. The average scheduled nurse time ranged from two to 41 minutes per visit. Public health nurses participated in clinics in 19 counties. Public health nurses from health departments visited each mother at home at least once in 15 counties. Nutritionists or dietitians participated regularly in only five counties but were available for consultation in 18. Social workers (professional training not specified) participated in clinics regularly in 17 counties and were available as consultants in nine others.

Procedures. Of the commonly accepted procedures in prenatal care only the tests for urinary sugar, hemoglobin (one exception), and the legally required serology for syphilis were performed at least once on all mothers in addition to weight, blood pressure and urinary protein (one exception) which were determined on all mothers at each visit. Of the 93 clinics studied, 61 per cent did not type blood for ABO factors, 13 per cent did not type for Rh factor, 42 per cent did not examine urinary sediment, 35 per cent did not perform chest x-rays, 30 per cent did not measure height, 8 per cent did not measure the pelvis. Many clinics tested for urinary sugar at each visit and one clinic each reported routine Rh titers on Rh negative patients, Rh typing of husbands of Rh negative patients, tuberculin testing, cancer detection smears, pelvic x-rays. Written nursing manuals on clinic policies and procedures were available in only 15 hospitals and seven health departments. Special nutritional advice was given in 31 hospitals and eight health departments, usually both verbally and with supporting printed material. In one county, all pregnant women were placed on diets restricting salt and calories. In only 20 counties were there any expectant parents' classes, many of these given by the Red Cross.

ELIGIBILITY

Policies determining eligibility of mothers for prenatal care varied considerably. One of the most significant findings was that 40 per cent of the agencies responsible for these policies did not have them in writing. It was so difficult to define the variations in eligibility of legal residents of other counties or states that it must suffice here to say that in some places the rule of three years in state, one year in county is strictly observed and that in others more attention is given to the need for care and the likelihood of county hospital delivery. The factors involved in determining financial eligibility are as complex but a few were identified. A multifactorial budget standard, largely the Aid to Needy Children budget, was used by 42 per cent of agencies but 58 per cent did not obtain a medical diagnosis prior to eligibility determination so that concurrent disease or complications of pregnancy could not be considered. Most agencies were less likely to accept a mother if she carried any health insurance. She was automatically excluded in 20 if she would not waive the statute of limitations; in 13, if she would not accept a lien on her property; in six, if she sought care too early or too late in pregnancy; in five, if she were pregnant for the first time; in three, if her family income was over a fixed amount; in one, if she did not provide blood for the hospital bank.

LOCAL STUDIES

The most promising finding of this survey was the widespread local interest in improving the present situation. This is demonstrated most effectively in the number of activities initiated since the 1952 conferences.

In Alameda County, the four health departments cooperated in a study of the fate of mothers refused admission to the county hospital's prenatal clinics, and in Los Angeles County General Hospital a sample of mothers delivered there was interviewed to determine how much prenatal care they actually had received and why certain mothers did not obtain adequate care. Related studies are in progress or completed in Berkeley, Monterey, Richmond, Santa Barbara, Santa Clara and Tulare.

San Bernardino County examined the relationship between prematurity in county hospital patients and prenatal care, distance between residence and clinic, race, marital status and cigarette smoking. In San Diego County, the Health Department and the Maternal and Neonatal Welfare Committee moved a step closer to a better definition of prematurity incorporating length of pregnancy. In San Joaquin County, there has been interest in relationships between prematurity and maternal nutrition.

In Alameda, Butte-Glenn, Orange, San Joaquin and Yolo Counties and in Long Beach, Pasadena and Santa Barbara, new maternal and perinatal study groups are active and in mid-1956, the first state maternal and perinatal committee was created by the California Medical Association.

NEXT STEPS

Since this is the first overall picture of public prenatal care in California, it is impossible to say how much progress has actually been achieved in the past ten or twenty years. It is not a black picture but it is certainly not a source of pride to the several groups who share responsibility for it. All of the studies so far completed point to three major unsolved problems:

1. The problem of inadequate quality of care.
2. The problem of ineligibility for care.
3. The problem of unsought care.

They document the deficit in prenatal care received by mothers from low income families and indicate that much public prenatal care falls short of criteria for good care and that present eligibility policies, many of which are unwritten, vary widely and sometimes unfairly.

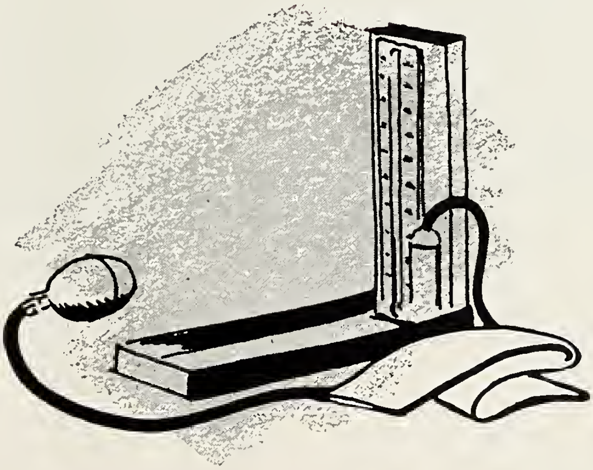
The causes and solutions of these problems are not simple. Representatives from the California Conference of Local Health Officers, the California Hospital Association, the California Medical Association, the California Osteopathic Association, the California Academy of General Practice, the California League for Nursing, the medical schools, the School of Public Health, and the State Departments of Education, Mental Hygiene, Social Welfare meeting in September as the State Advisory Committee on Maternal and Child Health discussed them in detail. They made several specific recommendations, chief among them the following:

1. That first attention be given to the problem of inadequate quality of care and that the State Department of Public Health develop in cooperation with the above groups standards and recommendations for good prenatal care, and provide consultant teams to local agencies seeking to improve their services.

2. That all eligibility policies be written and be made known to all community agencies and professional personnel who also serve these families, and that consideration be given to the development of statewide basic policies of eligibility for prenatal care and for hospitalization for complications of pregnancy.

3. That local health departments find out, if they do not already know, the extent of the deficit of prenatal care in their communities and the reasons why certain mothers either do not seek or do not obtain adequate care, and use the facts to plan appropriate improvement of local prenatal care.

The State Department of Public Health is acting upon these recommendations in cooperation with the above groups, the Association of County Supervisors, the County Welfare Directors' Association and the Governor's Advisory Committee on Children and Youth and offers its resources to any local agency in the state interested in improving the health and welfare of this large group of mothers and babies.



THE PHYSICIAN'S *Bookshelf*

PRINCIPLES OF UROLOGY—An Introductory Textbook to the Diseases of the Urogenital Tract—Meredith F. Campbell, M.S., M.D., F.A.C.S., Emeritus Professor of Urology, New York University. W. B. Saunders Company, Philadelphia, 1957. 622 pages, 319 figures, $9.50.

This is probably the best one-volume textbook on urology that has appeared in recent years. Though intended primarily for the student and general practitioner, it offers much of value even to the specialist in the field. The author is well known for his *Pediatric Urology* and as editor of the monumental 3-volume *Urology* which appeared in 1954. Possibly the reputation gained from these works lends a note of authority to this one.

It is a much more complete treatise than the several student manuals of which we have seen almost too many. This completeness is quite impressive, though there is no attempt to give any detailed technical instructions about any but the most simple diagnostic and therapeutic procedures. This is part of the author's design, for the book is intended to furnish an adequate basic concept of urology, without attempting to invade the field properly limited to the specialist.

There is a 90-page chapter on embryology and anomalies that is of unusual interest. This he justifies by the opening statement that "more than 10 per cent of all humans are born with some urogenital anomaly." Few doctors realize the importance of this fact. The chapter also includes a section on the undescended testicle that should be read by every pediatrician.

All the usual subjects are covered, including injuries, obstructions, infections, calculus disease, and tumors, as well as methods of history taking and examination. An unusual innovation is a section on semantics and word usage, with a syllabus of urologic terms. There are also included discussions of most of the less common conditions. Notable among these are the endocrine disorders and neuromuscular dysfunction of the bladder. One of the best chapters is the one on the adrenals, a subject largely ignored in many texts, and one of increasing interest and importance.

Not all urologists will agree with all of his opinions. He has an obvious prejudice against transurethral prostatectomy, which he considers of limited value and an operation "only for expert experienced hands." This position may, after all, have a healthy effect in warning against the unwarranted idea that the transurethral approach is always the best method of prostatic surgery. His implied preference for the suprapubic route reflects the influence of Keyes and the Bellevue Hospital. He even quotes Keyes' old aphorism, "Fewer perineals die, but fewer suprapubics wish they were dead." The retropubic operation receives little attention.

The book has a generally conservative tone, as compared to the tendency toward radicalism often seen. He refers to the radical cystectomy as a "slaughterhouse procedure" and doubts that many of the operators would permit the operation on themselves.

Principles of Urology by Campbell is to be strongly recommended. Even the specialist will find much of enlightenment, some things to argue about, and a lot of common sense. The nonspecialist will find a good concentrated basic knowledge of the field, and a thoroughly modern conservative approach to therapy. Most important to him is that there is no propaganda for ultraradical procedures, the value of which is debatable, and for which the decision should never be made by one not thoroughly familiar with the subject. Buy the book.

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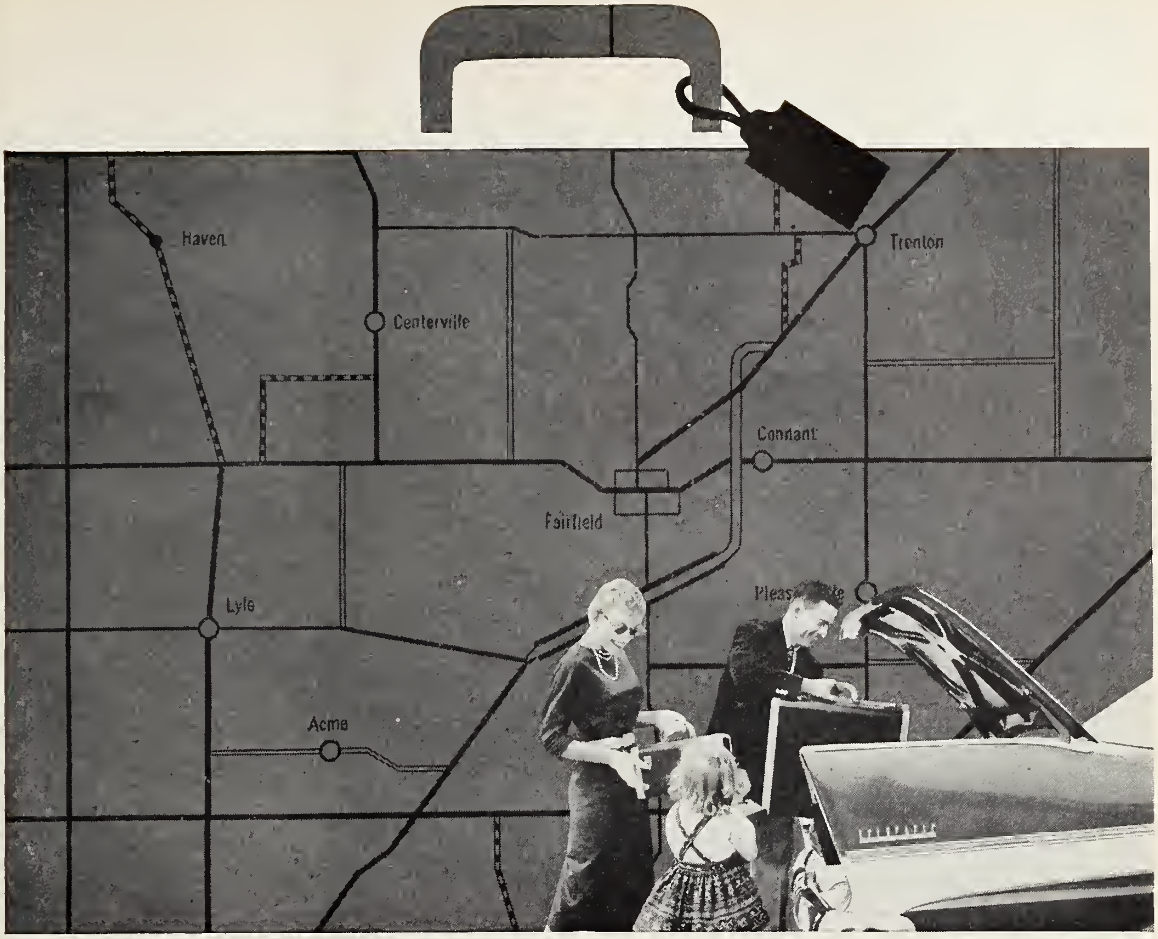
CLINICAL CARDIOPULMONARY PHYSIOLOGY — Sponsored by the American College of Chest Physicians—Edited by Burgess L. Gordon, M.D. Grune and Stratton, New York, 1957. 759 pages, $15.75.

This large volume, which was sponsored by the American College of Chest Physicians, is an attempt to present the clinical physiology of the lungs and heart and the application of this to clinical disease states. What has resulted from this attempt is not so much an integrated textbook as a set of articles by various authors on various segments of this field.

The book can be divided roughly into sections on pulmonary physiology and testing procedures, clinical pulmonary disease and cardiovascular disease. Most of the chapters are well written and present their subjects in a reasonably comprehensive manner. Many contain valuable personal laboratory, diagnostic, and therapeutic experiences of the author. Each is followed by an up to date and usually extensive list of pertinent references. Some chapters stand out in the combining of basic physiological thinking with clinical and therapeutic approaches to clinical problems. Examples are those on bronchial asthma, emphysema, and acquired valvular heart disease. Not all are so good. For example, the chapter on normal pulmonary physiology does not live up to its stated purpose of providing a background for discussing fundamental disturbances in that it devotes too much space to pulmonary function tests and not enough to basic physiology. Another example is the section on cardiac catheterization which is sketchy and places an improper emphasis on arterial catheterization. The weaker chapters do not, however, detract too greatly from the overall value of the book because as pointed out above each is virtually an independent article on its own subject and can be read as such.

In general the book quite well fulfills its stated purpose, that of bringing together into one volume a large amount of material bearing on the physiological and clinical aspects of heart and lung disease. It is a volume which should be of definite value to the clinician who deals with pulmonary problems, and which should be added to any cardiopulmonary library.

F. L. Eldridge, M.D.



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Rehfuss, M. E., and Price, A. H.: A Course in Practical Therapeutics, ed. 3, Baltimore, The Williams & Wilkins Company, 1956, p. 534.

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Contaminated Water May Play Role in Polio Spread

When an outbreak of polio occurs in a specific area within a community, it may be caused by pollution of the area's drinking water, three Nebraska researchers said recently.

While a community's water may be judged safe at pumping stations and other regular testing sites, it may become contaminated within a small area of the distribution system. Therefore, the water in an outbreak area should be tested and, if necessary, boiled before drinking, they said in a recent issue of the *Journal of the American Medical Association.*

Dr. Paul M. Bancroft, Warren E. Engelhard, Ph.D., and Dr. Charles A. Evans, Lincoln, Neb., studied an unusual polio outbreak occurring in the summer of 1952 in Huskerville, a community of University of Nebraska students and their families near Lincoln.

All but two cases, one paralytic and one nonparalytic, occurred in two and one-half of the four rows of barracks-like buildings. During a five-week period, more than 10 per cent of the 347 children in the affected two and one-half rows developed poliomyelitis and 4.6 per cent suffered paralytic polio. During this same period, there were no cases among the 256 children residing in the adjoining section of the village.

The persons living in the village were "strikingly select," in that they were of approximately the same age and of the same cultural, social and physical backgrounds. There were no geographical or social barriers and no biological or other environmental features that accounted for the unusual distribution of cases. Measles and chickenpox spread through the same community without any higher incidence occurring in particular areas, the authors said.

A variety of evidence pointed to pollution of the water supply within the affected area as "the sole factor" which could be used to explain the disease distribution, they said.

Contaminated water has long been suggested as a mode of spreading polio; however, there has been no convincing evidence presented that pollution of a community water supply was responsible.

In the Huskerville outbreak, it appears that it was not the community water system, but only water near the affected individuals that was contaminated. If this is true, it means that the role of water in the spread of polio must be reexamined, the authors said.

Institutional epidemics or the clustering of cases in certain buildings or even in certain parts of buildings, or in certain small villages, might be ex-

(Continued on Page 68)

KNOX PROTEIN PREVIEWS

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[1] The Food Exchange Lists referred to are based on material in "Meal Planning with Exchange Lists" prepared by Committees of the American Diabetes Association, Inc., and The American Dietetic Association in cooperation with the Chronic Disease Program, Public Health Service, Department of Health, Education and Welfare.

Contaminated Water May Play Role in Polio Spread

(Continued from Page 66)

plained if pollution of water near individuals is an important factor, they said.

Until the significance of "proximate pollution" of water in the spread of polio can be evaluated, the boiling of drinking water in the home is a measure that should be considered as one precaution of possible value in prevention of the disease in times of epidemic, especially when it is remembered that cross connections and other conditions favoring localized contamination of water supplies are still common in many water systems, they concluded.

American Medical Association Surveys Organized Home Care Programs

While "organized home care programs" sponsored by hospitals or health and welfare groups are not really new, they are receiving more attention now than ever before.

Because the number of such programs will probably grow during the next few years and many physicians will be involved in organizing them, the committee on indigent care of the American Medical Association's Council on Medical Service surveyed the work of 31 programs now in operation. The report appeared in a recent issue of the *Journal*

(Continued on Page 76)

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Wider Use of Tuberculosis Vaccine Recommended

In spite of the dramatic drop in deaths from tuberculosis in recent years, the disease continues to be a major health problem in many areas.

One way of combating the problem—mass vaccination of susceptible persons with BCG vaccine—was recommended in an article and editorial in a recent issue of the *Journal of the American Medical Association.*

The article was prepared by the medical advisory committee of the Research Foundation of Chicago. The foundation helps other organizations and individuals in developing methods and materials for preventing tuberculosis.

BCG vaccine derives its name, Bacillus Calmette-Guerin, from two French scientists who pioneered its development 30 years ago. Given to healthy persons, the vaccine causes the body to develop immunity to tuberculosis. Revaccination is necessary about every four years.

Some 150 million persons have been vaccinated with BCG throughout the world, and in many countries BCG vaccination is mandatory. Extensive studies have shown a "marked reduction" in the incidence of tuberculosis in vaccinated persons as compared with nonvaccinated persons.

BCG vaccination has not been used extensively in the United States, even though the American Trudeau Society has recommended that it be used for those individuals who will be unavoidably exposed to tuberculosis, for groups considered to have inferior resistance, and for those living in communities with unusually high tuberculosis mortality rates. These recommendations have been supported by the National Tuberculosis Association, the U. S. Public Health Service and the A.M.A.'s Council on Drugs.

There have been several objections to the use of BCG vaccine in the United States, including whether there is really a need for it and whether it is effective.

The number of newly reported cases of tuberculosis remains high, in spite of drops in the death rate. In fact, there were as many—100,000—newly reported cases in 1954 as in 1930. The number of districts in large cities where the incidence of newly reported cases is four or more times that of the national average also shows that the disease is "still a serious problem" and that an effective vaccine would be of material aid in controlling the disease in these areas, the article said.

Studies in England and Canada and among U. S. negro, white and Indian populations have shown that the vaccine is effective in preventing infection. The most recent and best controlled study is that conducted among nearly 56,000 English school chil-

(Continued on Page 81)

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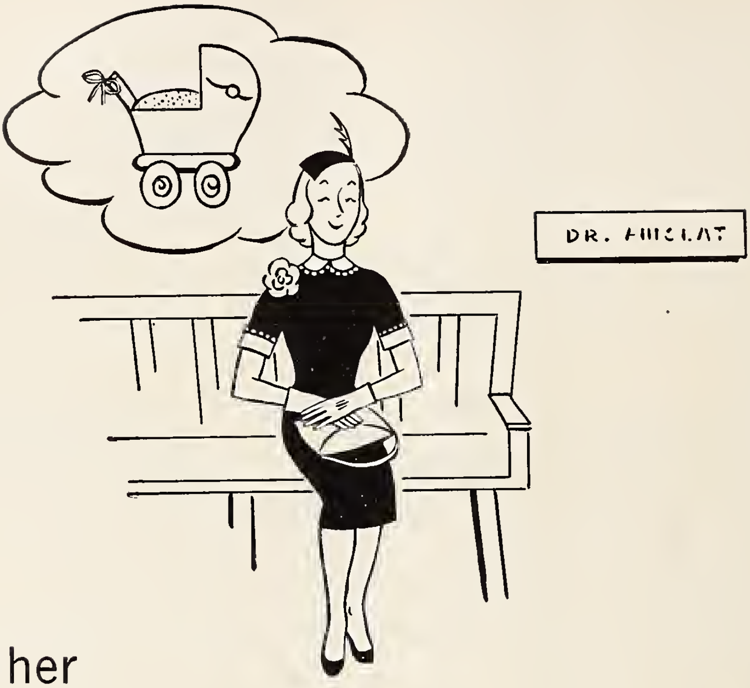

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1. Dickel, H. A., Wood, J. A. and Dixon, H. H.: Electromyographic studies on meprobamate and the working, anxious patient. Ann. New York Acad. Sc. **67**:780, May 9, 1957.
2. Dickel, H. A., Dixon, H. H., Wood, J. A. and Shanklin, J. G.: Electromyographic studies on patients treated with meprobamate. West. J. Surg. **64**:197, April 1956.

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(Continued from Front Advertising Section Page 54)

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(Continued on Page 100)

Study Shows "Patchwork" of Chemical Laws

A recent American Medical Association study showed a "patchwork" of state and federal laws regarding the labeling of hazardous chemicals, and pointed up the need for a uniform law.

Bernard E. Conley, Ph.D., secretary of the A.M.A.'s committee on toxicology, said his committee and the A.M.A. law department conducted the study in preparation for drafting a model chemical labeling law. A fall conference of interested parties in government, industry and medicine is planned to draft the model law, which will then be submitted to legislative bodies.

The proposed legislation is intended to reduce careless and ignorant handling of potentially harmful products in and around the home, in small businesses and in other areas where control of overexposure to chemicals is not as efficient as in the manufacturing process, Conley said.

The law will require informative labeling, including listing of possibly harmful ingredients, their potentialities for harm, directions for safe use, and first-aid instructions.

At present all the states require labeling of narcotics; 93 per cent of drugs, and 85 per cent of pesticides. However, only 52 per cent require labeling of caustics and 10 per cent of industrial chemicals. Only New York, Indiana, Kansas and Connecticut regulate hazardous substances in household products.

At the national level, there are several chemical laws, including the Food, Drug and Cosmetic Act of 1938; the Insecticide, Fungicide and Rodenticide Act of 1947, and the Federal Caustic Poisons Act of 1927. In addition, the Interstate Commerce Commission and the Post Office Department have regulations regarding labeling, uses and transportation of chemicals.

The hodge-podge of laws is confusing and leads to omission of many necessary regulations, Conley said. For instance, only 10 of 25 state caustic acid laws are similar to the Federal Caustic Poisons Act. The federal act itself is limited to only 12 caustic and corrosive acids and alkalies in specified concentrations, of which some are known to be hazardous in lower concentrations. In addition, many dangerous acids and alkalies are not even included in the law.

Of the 46 states with drug laws, only 19 conform to the Federal Food, Drug and Cosmetic Act of 1938, even though 40 per cent of all drugs sold are confined to intrastate commerce, Conley said.

All but four states have poison laws or regulate the sale of poisons in some way. Only five states (California, Oregon, Illinois, New York and New Jersey) require precautionary labeling of chemical products used in industrial establishments. Other states have special laws regulating specific individual chemicals. In fact, there are 16 types of these special

(Continued on Page 90)

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Lowsley, O. S., and Kirwin, T. J.: Clinical Urology, ed. 3, Baltimore, Williams & Wilkins Company, 1956, vol. 2, p. 975.

"Despite the fact that alkali was not given and no attempt was made to force fluids, [Gantrisin] did not cause the formation of concretions and there was no decrease in urine output."

Carroll, G.; Allen, H. N., and Flynn, H.: J.A.M.A. 142:85 (Jan. 14) 1950.

"No serious reactions due to [Gantrisin] were observed in approximately 23,000 courses of the drug."

Yow, E. M.: Am. Pract. & Digest Treat. 4:521 (Aug.) 1953.

Gantrisin] is well absorbed . . . and possesses the advantage of marked olubility in the normal pH range of urine, thus eliminating the need for kali administration and maintenance of a high fluid intake."

Daeschner, C. W.; Clark, J. L., and Yow, E. M.: J. Pediat. 50:531 (May) 1957.

antages of [Gantrisin] are that adjuvant alkali therapy is not manda- fluids need not be forced, and patients with impaired renal function be treated with little danger of further injury to the kidney."

Goodman, L. S., and Gilman, A.: Pharmacologic Basis of Therapeutics, ed. 2, New York, Macmillan Company, 1955, p. 1316.

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Study Shows "Patchwork" of Chemical Laws

(Continued from Page 84)

laws and some states have as many as five such statutes.

"By and large there is greater agreement between state and federal laws" in the area of pesticides than in any other major class of chemical products, Conley said. Forty-three states have laws governing the sale and distribution of pesticides.

The need for a uniform law is quite apparent, he said. Uniformity not only will offer greater protection to the users of chemicals, but will facilitate educating the public to the significance of warning labels. It will also avoid the need for special packaging and labeling for each state, thus easing distribution and decreasing the cost of chemical products.

Medical Aspects of Arctic Trip

A physician who spent 100 days isolated on the Greenland Ice Cap with five other scientists said recently that respiratory ailments were the most common medical problems and aspirin the most frequently used medication.

The most interesting case occurred after 40 days of isolation, Dr. Robert W. Christie, Brookhaven National Laboratory, Upton, N. Y., said in a recent issue of the *Journal of the American Medical Association.*

The expedition leader developed an influenza-like illness three days after the group received an air drop of supplies. The disease apparently was transmitted by the man's personal mail, Dr. Christie said, since all the other materials dropped were handled by the other men, none of whom became ill. There was no evidence of other means of contracting the disease.

In 1955 the scientists traveled almost 1,200 miles (400 miles through unexplored regions) and collected data in the fields of glaciology, geophysics, bacteriology, physiology and mechanical engineering. The temperatures ranged between 31°F. and —31°F. and the altitude ranged to 12,000 feet.

Dr. Christie made his report because it "may be of interest to physicians participating in polar explorations during the International Geophysical Year and to those interested in the effects of unusual environments on man."

During the 100 days there were 61 medical visits. None of the diseases were serious and most were treated with relatively common drugs. The ailments included sinusitis, sore throat, common cold, bloody nose, stomach upsets, muscle strain, ingrown toenail, burns, cold sores, headache, motion sickness, frostbite, snow blindness, and back strain.

Three members developed diarrhea, "an exceed-

(Continued on Page 107)

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(1) *Masters, W.H., J. Am. Ger. Soc. 3:31, 1955*
(2) *Kinsell, L.W., Ibid 3:389, 1955*
(3) *Ingle, Endocrinology 50:1, 1952*
(4) *Kaufman, W., J. Am. Ger. Soc. 3:927, 1955*
(5) *Jayne, E.P., J. Geront, 12:1, 1957*

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Pacifier Returning to Popularity

The baby's pacifier, long condemned as unsanitary, tooth-deforming and disease-producing, is making a comeback.

Today many pediatricians and dentists are beginning to look on the pacifier as "at least a partial answer to the vexing problem of how to prevent prolonged thumbsucking and the dental disfigurement it often causes." according to an article by Peter C. Goulding, Chicago, an American Dental Association staff member.

He said bacteriological studies have shown that pacifiers are actually more sanitary than the thumb. In addition, because of their soft texture, pacifiers are far less likely than the thumb to force the teeth out of position.

Perhaps the most persuasive point in favor of pacifiers is the fact that children apparently give them up earlier and with less trouble than they do thumbsucking, Goulding said. One study showed that 28 children spontaneously gave up the pacifier at the average age of 14 months, he said in a recent issue of *Today's Health,* the American Medical Association's popular health magazine.

Most authorities agree that a "basic instinct of sucking" is apparently one of the factors behind the start of thumbsucking. The pacifier helps satisfy this need.

The article quoted Dr. Maury Massler, head of the department of pedodontics at the University of Illinois College of Dentistry, who pointed out that thumbsucking in itself is not bad. But when it is practiced vigorously and during the eruption of the permanent teeth, malformation of the teeth can result.

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- Gallbladder Surgery, Three Days, November 4
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A REPORT ON A PROMISING CONCEPT IN ANTIMICROBIAL THERAPY: CONCURRENT ADMINISTRATION OF CHLOROMYCETIN AND GAMMA GLOBULIN

In treatment for infection, the physician is confronted with complex interactions between pathogen, antimicrobial agent and host. The pathogen represents the unselected factor, the therapeutic agent the component over which the physician exercises maximum control. But even with optimal antibiotic therapy, the eventual elimination of the infective agent and the resolution of pathologic changes depend upon efficient host response.[1,2]

Passive transfer of antibodies through gamma globulin provides a broad antibacterial spectrum because of origin in adults exposed to a variety of microorganisms. Employed as a protective element against some of the more common contagious diseases, gamma globulin permits more competent participation by the host in the fight against established infection.

Rationale for immuno-antibiotic therapy lies in simultaneous direct attack on the pathogen and re-enforced host resistance, which implies usefulness in treatment for acute fulminating, highly refractory, or prolonged infections.

EXPERIMENTAL STUDIES ENCOURAGING

In carefully controlled studies in mice, Fisher and his colleagues in Parke-Davis Research Laboratories, using pooled human gamma globulin and Chloromycetin (chloramphenicol, Parke-Davis) concurrently, demonstrated a high degree of therapeutic effectiveness in infected animals.[3] Five types of infection induced with species of Staphylococcus aureus, Streptococcus pyogenes, Proteus vulgaris and Pseudomonas aeruginosa responded to joint therapy with gamma globulin and Chloromycetin, each agent having shown at deliberately low doses in previous work little or no activity in these mouse infections when used separately. Fisher's experiences with hemolytic streptococci have been confirmed.[4]

Tests now in progress with pneumococci, salmonellae and additional strains of pseudomonas and proteus indicate that marked increases in survival rates may be anticipated in any infection where chloramphenicol has previously demonstrated therapeutic activity.[3] These observations suggest that immuno-antibiotic therapy can effect cures in a variety of refractory microbial diseases.

PROMISING IN EARLY CLINICAL TRIAL

Observations analogous to those of Fisher have been reported from the clinic.[5-7] More recently, the clinical use of gamma globulin in conjunction with antibiotics was undertaken by Waisbren[8] on the basis of Fisher's experimental work. His series of 46 patients with systemic and localized infections due to various strains of staphylococcus, pseudomonas, salmonella, proteus and to the pneumococcus had failed to respond to maximum effort with conventional therapeutic measures. Marked clinical improvement in six of these acutely ill patients shows clearly "...that in certain instances the addition of gamma globulin to antibiotic therapy may give a clinical result that could not have been obtained with the antibiotics used alone. In each of these cases, a long and extensive control period in which antibiotics were being vigorously administered had failed to produce a response but when gamma globulin was given with approximately the same dosages of antibiotic, rather marked improvements occurred."[8]

While the precise mechanism underlying the salutary effect of gamma globulin remains to be clarified, the existence of quantitative hypogammaglobulinemia was ruled out in patients in this series.[8]

A RATIONALE FOR IMMUNO-ANTIBIOTIC THERAPY

Although the relationship of susceptibility to infection and status of the host is well recognized, host resistance is an aspect of infectious disease still not understood in an era of extensive and of massive antibiotic therapy. Most antibiotics, in concentrations tolerated by living tissues, have bacteriostatic rather than bactericidal effect. In the clinic, bacteriostatic doses are most frequently given and host defense mechanisms are responsible for the eventually satisfactory clinical result.[4]

The problem of therapeutic failures despite vigorous courses of antibiotic therapy may be due to some disturbance in the immune process.[9] In addition, disproportionately high mortality rates in the extremes of life lend support to the impression of inadequate defense mechanisms, since these are underdeveloped and immature in the very young and may be impaired or depressed in the aged.[4]

Any discussion of immuno-antibiotic treatment must at present remain largely conjectural. From preliminary evidence, however, this approach to therapy appears worthy of consideration, especially in patients in whom adequate antibiotic therapy for active infectious processes has been disappointing. While the concept of enlisting the aid of the host in combating pathogenic microbes, thereby affording the physician control of two of the three principal interacting factors, is not new, enhancement of host resistance through use of gamma globulin in treatment for microbial disease is indeed a promising one.

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CLASSIFIED ADVERTISEMENTS

(Continued from Page 84)

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BOOKS RECEIVED

(Continued from Front Advertising Section Page 34)

PSYCHOSOMATIC MEDICINE—A Clinical Study of Psychophysiologic Reactions — Third Edition — Edward Weiss, M.D., Professor of Clinical Medicine, Temple University; and O. Spurgeon English, M.D. Professor and Head of Department of Psychiatry, Temple University. W. B. Saunders Company, Philadelphia, 1957. 557 pages, 8 figures, $10.50.

REGULATION AND MODE OF ACTION OF THYROID HORMONES—Ciba Foundation Colloquia on Endocrinology —Volume 10, G. E. W. Wolstenholme, O.B.E., M.A., M.B., B.Ch., and Elaine C. P. Millar, A.H.-W.C., A.R.I.C., Editors for the Ciba Foundation. Little Brown and Company, Boston, 1957. 311 pages, 114 illustrations, $8.50.

SCHIZOPHRENIA IN PSYCHOANALYTIC OFFICE PRACTICE—The Society of Medical Psychoanalysts 1956 Symposium—Alfred H. Rifkin, Editor. Grune & Stratton, Inc., New York, 1957. 150 pages, $4.00.

SCIENCE LOOKS AT SMOKING—A New Inquiry into the Effects of Smoking on Your Health—Eric Northrup—Introduction by Dr. Harry S. N. Greene, Chairman Department of Pathology, Yale University. Coward-McCann, Inc., 210 Madison Avenue, New York 16, N. Y., 1957. 190 pages, $3.00.

SCOVILLE'S—THE ART OF COMPOUNDING—9th Edition—Glenn L. Jenkins, Ph.D., Dean and Professor of Pharmaceutical Chemistry, Purdue University; Don E. Francke, D.Sc., Chief Pharmacist, University Hospital, University of Michigan, Ann Arbor, Michigan; Edward A. Brecht, Ph.D., Dean and Professor of Pharmacy, University of North Carolina; and Glen J. Sperandio, Ph.D., Associate Professor of Pharmacy, Purdue University. The Blakiston Division, McGraw-Hill Book Company, Inc., New York, 1957. 551 pages, $11.00.

SPONTANEOUS AND HABITUAL ABORTION—Carl T. Javert, M.D., Professor of Clinical Obstetrics and Gynecology, College of Physicians and Surgeons of Columbia University. The Blakiston Division, McGraw-Hill Book Company, Inc., New York, 1957.

SURGEONS ALL—Harvey Graham, M.D., Foreword by Oliver St. John Gogarty. Philosophical Library, New York, 1957. 459 pages, $10.00.

SURGERY IN WORLD WAR II—Orthopedic Surgery in the Mediterranean Theater of Operations—Colonel John Boyd Coates, Jr., MC, Editor-in-Chief; Mather Cleveland, M.D., Editor for Orthopedic Surgery. Office of the Surgeon General, Department of the Army, Washington, D. C., 1957. U. S. Government Printing Office, Washington, D. C., 368 pages, $4.00.

SURGICAL MANAGEMENT OF PULMONARY TUBERCULOSIS, THE—Edited by John D. Steele, M.D. Charles C. Thomas, Publisher, Springfield, Illinois, 1957. 213 pages, $9.50.

SYNOPSIS OF OBSTETRICS—Fifth Edition—Revised— Jennings C. Litzenberg, B.Sc., M.D., F.A.C.S., Late Professor Emeritus of Obstetrics and Gynecology, University of Minneapolis Medical School. The C. V. Mosby Company, St. Louis, 1957. 403 pages, 163 illustrations, including four in color, $6.00.

SYSTEMIC ARTERIAL EMBOLISM—Pathogenesis and Prophylaxis—Modern Medical Monographs No. 14—John Martin Askey, M.D., Associate Clinical Professor of Medicine, University of Southern California School of Medicine, Grune & Stratton, New York, 1957. 157 pages, $5.75.

UROLOGICAL SURGERY—Third Edition—Austin Ingram Dodson, M.D., F.A.C.S., Richmond, Virginia, Professor of Urology, Medical College of Virginia. The C. V. Mosby Company, St. Louis, 1956. 868 pages, $20.00.

X-RAY TECHNOLOGY—Charles A. Jacobi, B.Sc., R.T. (A.R.X.T.), M.T. (A.S.C.P.), M.T. (A.M.T.), Head, X-Ray Technology, Oregon Technical Institute, Oretech, Oregon; and Donald E. Hagen, R.T. (A.R.X.T.), Instructor, X-ray Technology, Oregon Technical Institute. The C. V. Mosby Company, St. Louis, 1957. 410 pages, $9.75.

Medical Aspects of Arctic Trip

(Continued from Page 90)

ingly unpleasant occurrence in polar regions," and all became anemic soon after setting out. This occurred despite excellent food, including large amounts of beef eaten almost daily.

The drugs used included aspirin for headache and muscle and joint aches: phenylephrine (neosynephrine) hydrochloride for sinusitis; paregoric for diarrhea; salt water gargle for sore throat: cod liver oil ointment for burns and frostbite, and various antibiotics and sedatives.

There were no serious emotional problems, although at times psychological stresses were fairly severe and there were numerous minor personality clashes, Dr. Christie said. The many and varied duties of the members preserved morale most of the time.

Although his medical problems were not serious, Dr. Christie feels that it is advisable to maintain the traditions of Arctic exploration by including a qualified physician in any self-sufficient polar expedition traveling in dangerous or unknown territory.

Weather conditions may prevent use of air-rescue facilities. During one period on the ice cap, it would have been impossible for an air-rescue group to have reached the project for eight consecutive days and extremely hazardous for a week thereafter.

"In polar regions a minor injury is a serious affair and a major injury may be a mortal one," he said. Low temperatures, increased altitudes and lack of external heat complicate injuries that could easily be cared for in other climates.

A physician becomes almost a necessity, for "a mishap in the 20th century is equivalent in seriousness and mortality to a mishap in the Middle Ages if 20th-century medical technique and knowledge are not at hand," he concluded.

Requirements for Premarital Examinations

Requirements for premarital examinations in the states and territories of the United States and the provinces of Canada—1957, has been compiled by the State of California Department of Public Health in response to a demonstrated need for a ready reference to the varying laws for different jurisdictions. Physicians, public health workers, marriage license clerks, and others should find this summary helpful in answering inquiries from persons planning to be married in states, territories, or provinces other than their own.

Copies of the booklet, if needed, may be obtained by addressing inquiries to: Bureau of Health Education, California State Department of Public Health, 2151 Berkeley Way, Berkeley 4, California.

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ddition of neomycin to the ective DONNAGEL formula assures n more certain control of most f the common forms of diarrhea. Neomycin is an ideal antibiotic teric use: it is effectively cteriostatic against neomycin-eptible pathogens; and it is latively non-absorbable.

The secret of DONNAGEL WITH NEOMYCIN's clinical dependability lies in the comprehensive approach of its rational formula:

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Dihydroxyaluminum aminoacetate (0.25 Gm.)	antacid, demulcent	Enhances demulcent and detoxifying action of the kaolin-pectin suspension.
Natural belladonna alkaloids: hyoscyamine sulfate (0.1037 mg.) atropine sulfate (0.0194 mg.) hyoscine hydrobromide (0.0065 mg.)	anti-spasmodic	Relieves intestinal hypermotility and hypertonicity.
Phenobarbital (¼ gr.)	sedative	Diminishes nervousness, stress and apprehension.

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Informational literature available upon request.

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DOSAGE: Adults: 1 to 2 tablespoonfuls (15 to 30 cc.) every 4 hours. **Children over 1 year:** 1 to 2 teaspoonfuls every 4 hours. **Children under 1 year:** ½ to 1 teaspoonful every 4 hours.

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Mecamylamine Hypertension Treatment

A tranquilizer in combination with a nerve blocking drug is the most effective available treatment for high blood pressure, three Texas physicians recently stated.

Mecamylamine (Inversine) hydrochloride, a ganglionic blocking agent, and reserpine, a derivative of rauwolfia serpentina, were used to treat 75 patients with moderate and severe hypertension at Jefferson Davis and Hermann Hospitals in Houston.

A one-year follow-up study showed that the combination produced as good a result after one year as it had in the first three to four months, the physicians said in a recent issue of the *Journal of the American Medical Association.* Although somewhat larger doses were needed to maintain the reduced blood pressure after one year, the number and severity of adverse side effects were much reduced. Checks after 18 and 24 months showed no increase in dosage and continued reduction in side-effects.

The physicians compared the effect of mecamylamine, when used alone, with that of three other blood pressure-reducing drugs—hexamethonium, chlorisondamine (Ecolid) chloride, and pentolinium (Ansolysen) tartrate and found mecamylamine to be "much more potent" than the other drugs.

In addition, mecamylamine had the added advantages of being effective when taken by mouth and producing fewer side effects than the other drugs.

While mecamylamine was effective when used alone, it was much more so when reserpine was also given, the authors said. Reserpine also helped reduce the severity and frequency of such side effects as constipation, weakness, and dizziness.

The authors are Drs. John Moyer, Charles Heider, and Edward Dennis of Baylor University College of Medicine.

Eye Blood Changes Serve As Resuscitation Guide

A once-infallible sign of death might now become a signal of a chance for life as well, a University of Michigan pathologist reported.

Dr. Jack Kevorkian, Pontiac, Mich., said in a recent issue of the *Journal of the American Medical Association* that certain changes in the eye—known to occur at death—can also indicate that it is not too late to restart a suddenly stopped heart.

In recent years, sudden cardiac arrest has been overcome by opening the chest and restoring the heartbeat by hand massage and electric shock. This has become an almost common occurrence, mostly during surgery.

But the physician must know whether he still has time for this operation before the brain is permanently damaged by lack of oxygen. Certain changes in the blood supply of the eye's retina can serve as as indicator. Dr. Kevorkian said. These changes can easily be seen through the ophthalmoscope.

When the heart stops, the flow of blood in the retina's veins becomes segmented or interrupted, while the blood in the arteries disappears altogether. The segments of blood in the veins continue to move for several minutes after the heart is stopped.

If such segmentation is seen, it is a sign that the heart has stopped, and if the segments are still moving, it is a fairly good sign that resuscitation would probably be successful, Dr. Kevorkian said.

Whether these signs are infallible as a new diagnostic tool remains to be established, he said. However, all of his studies on humans and animals support the contention that eye changes, as seen through the ophthalmoscope, can serve as an accurate aid in determining cardiac arrest and as a dependable guide for treatment.

Car Headrest Prevents Neck Injuries

An automobile seat headrest was recommended recently as a way of preventing neck injuries when a car is struck from the rear.

Dr. Albert D. Ruedemann Jr., Detroit, said in a recent issue of the *Journal of the American Medical Association* that one of the more common auto accident injuries is the "whiplash injury." When a car is struck from the rear, it causes a forward movement of the body, followed by a rapid back-snapping of the head. This injures the neck.

These injuries are becoming more common, he said, because changes in seat construction to accommodate the new lower models have made back seats lower, allowing a greater area of the body to be above the top of the seat. In addition, expressways and super highways with congestions of traffic at entrances and exits make the "chain reaction accident" more common.

A headrest, six inches high and six inches wide, fitted on top of the present seat back will help prevent such injuries, he said. The headrest is so constructed that it follows the line of the seat. This prevents the driver from resting his head on it during travel and becoming drowsy. However, it does support the head in case of an accident by preventing the backward movement of the head.

Dr. Ruedemann recommended that it be used in conjunction with a shoulder-type seat belt which reduces forward motion of the body.

The headrest is screwed to the seat frame and is removable. It can be made to match the car upholstery.

New Chemotherapy

INDICATIONS:

- Rheumatoid arthritis, acute or chronic —with or without adjunctive therapy.
- Spondylitis
- Arthritis associated with lupus erythematosus or psoriasis

THEORY OF ACTION:

Aralen appears to suppress or induce remission of rheumatoid inflammatory processes by inhibiting adenosinetriphosphatase.

HOW SUPPLIED:

Aralen phosphate: 250 mg. tablets in bottles of 100 and 1000.
125 mg. tablets in bottles of 100.

Tolerance:

Aralen is usually well tolerated. Toxic effects are usually mild and to date have been transitory in nature, disappearing completely either on continuance or cessation of therapy or on reduction in dosage.

Gastrointestinal disturbances (e.g. nausea, rarely vomiting, diarrhea, abdominal cramps, anorexia) are frequent manifestations of intolerance. Temporary blurring of vision (due to interference with accommodation) is also relatively frequent.

Pleomorphic skin eruptions (e.g. lichenoid, maculopapular, purpuric), although generally mild, may preclude the use of an optimum dosage schedule. If a skin reaction persists on a reduced dosage schedule, or recurs after reinstitution of treatment with gradually increasing doses, discontinue Aralen till the lesion again disappears and consider resuming treatment with Plaquenil® (brand of hydroxychloroquine).

Less frequently transitory vertigo, headache, lassitude, or neurological disturbances, such as nervousness, irritability, emotional change, and nightmares have been reported. Instances of unexplained slight gradual weight loss as the patient's general health and arthritic condition improved have been mentioned. Occasional instances of bleaching (depigmentation) of the hair have been described.

Although an occasional instance of leukopenia, with normal differential count, has been reported (WBC about 3000), it has not proved troublesome because it has always been reversible on discontinuance, or diminution of the dose. Even spontaneous reversal may occur while full dosage is maintained.

Caution:

Aralen is known to concentrate in the liver and, although hepatic damage has never been reported, the drug should be used with caution in the presence of liver disease. In the presence of severe gastrointestinal, neurological, convulsive seizures, or blood disorders, the drug should be used with caution or not at all. If such disorders occur during the course of therapy, the drug should be discontinued. Concomitant use of gold or phenylbutazone with Aralen should be avoided because of the tendency of these agents to produce drug dermatitis.

Clinical Comments:

Of fifty patients receiving Aralen therapy, "43 have become really well; that is, they have no stiffness, and any pain that occurs can reasonably be attributed to use of joints affected by secondary degenerative changes. They have no evidence of joint inflammation, but may have a raised erythrocyte sedimentation rate. They have little or no need for analgesics." *Freedman*[3]

"One hundred and twenty-five private patients have been carefully followed clinically and haematologically while receiving well over 200 patient-years of chloroquine [Aralen] therapy. The results are considered good in 70%, one-half of these cases being in remission. Improved work performance, sedimentation rate, and hemoglobin levels paralleled the major objective gain in this 70%. 90% of them remained on chloroquine [Aralen] therapy, half for more than two years. Classical peripheral rheumatoid arthritis, spondylitis, arthritis of juvenile onset, and rheumatoid disease with psoriasis, all appeared to respond about equally well.

"It is suggested that chloroquine comes closer to the ideal for long-term, safe, control of rheumatoid disease than any other agent now available." *Bagnall*[4]

"Out of the 36 rheumatoid arthritis cases we treated . . . favorable results were obtained in 32 cases. *Bruckner et al.*[5]

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Brain Operation Relieves Involuntary Movements

A brain operation which has helped adults suffering from Parkinson's disease has now been used to help cerebral palsied children.

The procedure, called chemopallidectomy, relieves the muscular rigidity and tremor of Parkinsonism and the involuntary movements of cerebral palsy without impairing the ability to move, according to Dr. Irving S. Cooper, director of the department of neurologic surgery, St. Barnabas Hospital, and professor of clinical neurosurgery, New York University-Bellevue Medical Center, New York.

The operation has been used on 30 children suffering from hyperkinetic or involuntary movement disorders with beneficial results in 20, Dr. Cooper said in a recent issue of the *Journal of the American Medical Association*.

His procedure involves injecting chemicals into the region of the globus pallidus, which lies in front of the thalamus. Why the operation helps relieve tremor, rigidity and involuntary movements is not exactly understood and requires much more study, Dr. Cooper said.

Most of the children's disorders were of congenital origin. They included chorea, or St. Vitus' dance;

(Continued on Page 26)

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A patient accepted for treatment may remain under the supervision of his own physician if he so desires

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SURGERY—Surgical Technic, Two Weeks, October 28, November 11
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  Treatment of Varicose Veins, November 18, December 16
  Gallbladder Surgery, Three Days, November 4
  Surgery of Hernia, Three Days, November 7
  General Surgery, One Week, October 28
  Fractures & Traumatic Surgery, Two Weeks, October 21

GYNECOLOGY & OBSTETRICS:
  Office & Operative Gynecology, Two Weeks, October 21
  Vaginal Approach to Pelvic Surgery, One Week, October 14
  General & Surgical Obstetrics, Two Weeks, November 4

MEDICINE—Gastroscopy & Gastroenterology, Two Weeks, November 4
  Dermatology, Two Weeks, October 14

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Behne, D.; Clark, F.; Jennings, M.; Pallais, V.; Olsan, H.; Walf, L., and Tyler, E. T.: West. J. Surg. 64: 152, 1956.

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Flavonoids Are Valueless In Disease Treatment

As matters now stand, flavonoids are of "little or no value" in the treatment of disease and have no known nutritional uses, according to a report by two American Medical Association councils.

William N. Pearson, Ph.D., of the department of biochemistry of Vanderbilt University School of Medicine, Nashville, Tenn., wrote the report for the A.M.A. Councils on Foods and Nutrition and Drugs.

The report in a recent issue of the American Medical Association *Journal* was prompted by "the recent upsurge of interest" in the flavonoids, particularly in the treatment of numerous diseases including the common cold.

Flavonoids are carbon-hydrogen-oxygen compounds that are widely distributed in nature as pigments in flowers, fruits, tree barks and vegetables. Their most important commercial source is citrus rind.

Considerable interest in the possible nutritional significance of these compounds was aroused in the late 1930s by Dr. A. Szent-Gyorgyi and co-workers who isolated "citrin" from citrus fruit peels and reported it to be effective in strengthening capillary and blood vessel walls against breakage. Such breakage of capillary walls is supposed to occur in a number of diseases.

However, valid tests for measuring the effect of flavonoids on capillary walls have not been devised. An earlier belief that they were a type of vitamin has not been confirmed.

Reports on several small studies were enthusiastic about the flavonoids' influence on common respiratory infections, because of their supposed capacity to strengthen capillary walls, but larger studies did not confirm these findings, Pearson stated.

"On the basis of the best evidence now at hand, it would appear that flavonoids have no significant effect . . . on the course of the common cold."

While they do appear to have some effect on capillary wall strength and do possess some mild blood-vessel-constricting effects. these properties are "rather weak when compared to those of other available agents," Pearson said.

Their effects on other diseases, including hypertension, diabetes, rheumatic fever, arthritis and various blood diseases, have been studied, but it is not possible to reach a valid conclusion as to their effectiveness because of the "general unreliability" of the testing procedures and the fact that periods of improvement occur spontaneously in these conditions.

In conclusion, Pearson said:

"The high hopes once held for the flavonoids . . . have not materialized. Instead, present knowledge

(Continued on Page 39)

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when anxiety and tension "erupts" in the G. I. tract...

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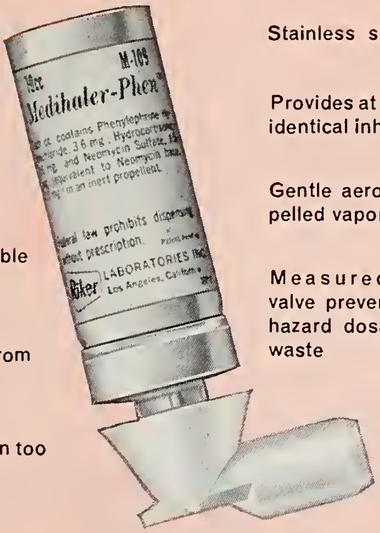

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ANOTHER **Riker** FIRST

Brain Operation Relieves Involuntary Movements

(Continued from Page 18)

hemiballismus, a violent form of motor restlessness involving one half of the body; athetosis, a constant recurring series of slow movements of the hands and feet; dystonia, an abnormality of muscular tension; and fixed postures.

In 20 of the children, followed for 3 to 24 months, there was "abolition or marked alleviation" of the involuntary movement disorder. One patient died and nine others were not benefited. He noted that a higher incidence of success is currently being achieved.

Dr. Cooper pointed out that chemopallidectomy is aimed only at relief of the involuntary movement disorders and will not relieve other abnormalities, such as paralysis, that are so frequently connected with congenital brain lesions. In cases in which the involuntary movements occurred in otherwise normal limbs, it was possible to relieve "even the most violent movement" while preserving normal movements in the limbs.

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Devereux Schools were first established in 1912, and they provide a complete scholastic program for children with emotional disorders or impaired intellectual functioning. The importance of the residential nature of the Schools cannot be overemphasized; the thousands of Devereux alumni now leading constructive adult lives are the criterion of the effectiveness of the Schools' work.

Devereux Communities fill a very real need by their "life-experience" and vocational programs for children, adolescents and young adults with impaired intellectual functions. Separate, self-contained campuses allow for homogenous groupings in terms of age and social maturity.

Devereux Camps are important summer adjuncts to both the Schools and Communities, providing the opportunity for continuity of treatment during summer months. A wide range of play and study is provided, in addition to medical, psychiatric and other formal therapies.

Professional inquiries should be addressed to MICHAEL B. DUNN, Ph.D., Coordinator of Professional Services, or KEITH A. SEATON, Registrar, Devereux Schools in California, Santa Barbara, California.

Helena T. Devereux, Director

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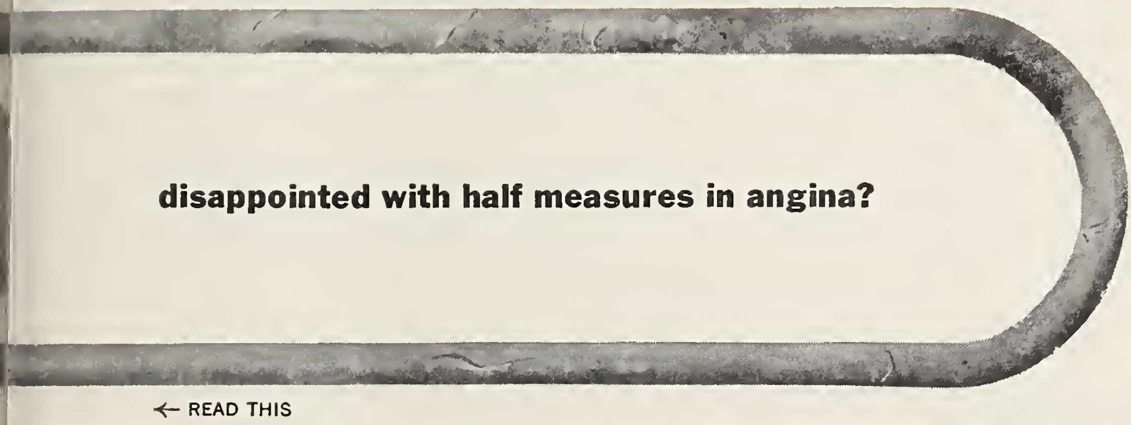
disappointed with half measures in angina?
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Flavonoids Are Valueless In Disease Treatment

(Continued from Page 24)

indicates that, while they possess mild pharmacological properties under certain conditions, the flavonoids have no known nutritional functions. They cannot be regarded as essential nutrients. Those workers who claim therapeutic value for the flavonoids have not supported their claims with data obtained from well-controlled clinical studies.

"Until such studies are made, it must be concluded that the flavonoids are of little or no value in the treatment of disease."

Brain Goes 19½ Minutes Without Oxygen

The period the brain can safely go without oxygen has been lengthened from the accepted five minutes to nearly 20—at least in one case, it was reported recently.

Four Illinois researchers told of a 24-year-old man whose brain was oxygen-starved for 19½ minutes during heart surgery, but who recovered with no permanent brain damage.

Damage usually occurs when the brain's blood and oxygen supply is cut off for more than five

(Continued on Page 33)

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each coated tablet contains:	**Phenaphen**
Phenacetin (3 gr.)	194.0 mg.
Acetylsalicylic Acid (2½ gr.)	162.0 mg.
Phenobarbital (¼ gr.)	16.2 mg.
Hyoscyamine Sulfate	0.031 mg.
	plus
Prophenpyridamine Maleate	12.5 mg.
Phenylephrine Hydrochloride	10.0 mg.

Brain Goes 19½ Minutes Without Oxygen

(Continued from Page 30)

minutes, they said in a recent issue of the *Journal of the American Medical Association.*

They attributed the safe recovery to the fact that the brain was "protected" by the effects of chlorpromazine and hypothermia.

The patient was undergoing a complicated operation to repair heart and artery damage resulting from a bullet wound. During the operation he suffered several severe hemorrhages in an artery leading to the brain, including one which kept him in a shock-like state for 19½ minutes.

Electroencephalographic measurements of the brain taken seven days before the operation were normal. During the first part of the operation, the patterns were typical, but when the hemorrhages started, dramatic changes occurred in the patterns. During the 19½-minute hemorrhage, there was a complete absence of electrical activity in the brain's cortex.

This prolonged period without electrical activity in the brain was apparently due to severe oxygen deficiency, resulting from the lack of blood flow into the brain following hemorrhage.

When the doctors noted these changes, they feared the patient would not survive without brain damage. However, later electroencephalograms showed normal brain function.

The authors are Dr. Robert L. Tentler, Dr. Max Sadove, Dorothy R. Becka and Robert C. Taylor of the Veterans Administration Hospital, Hines, Ill.

Plan to attend the Fourth Annual California Rural Health Conference, January 31 and February 1, Bakersfield. *Contact:* GLENN GILLETTE, Associate Director, Public Relations, California Medical Association, 450 Sutter Street, San Francisco 8.

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when anxiety and tension "erupts" in the G. I. tract...

IN DUODENAL ULCER

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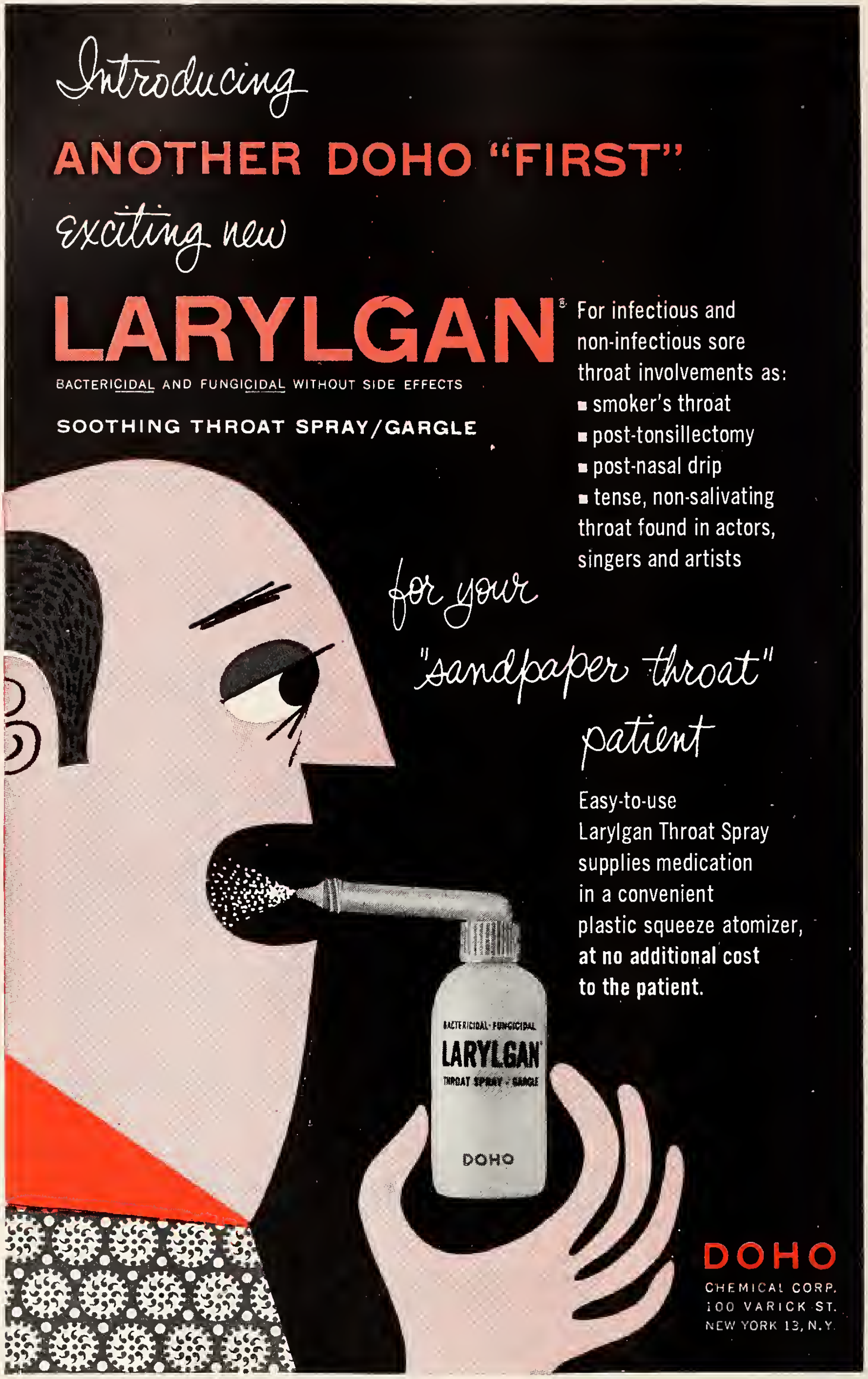

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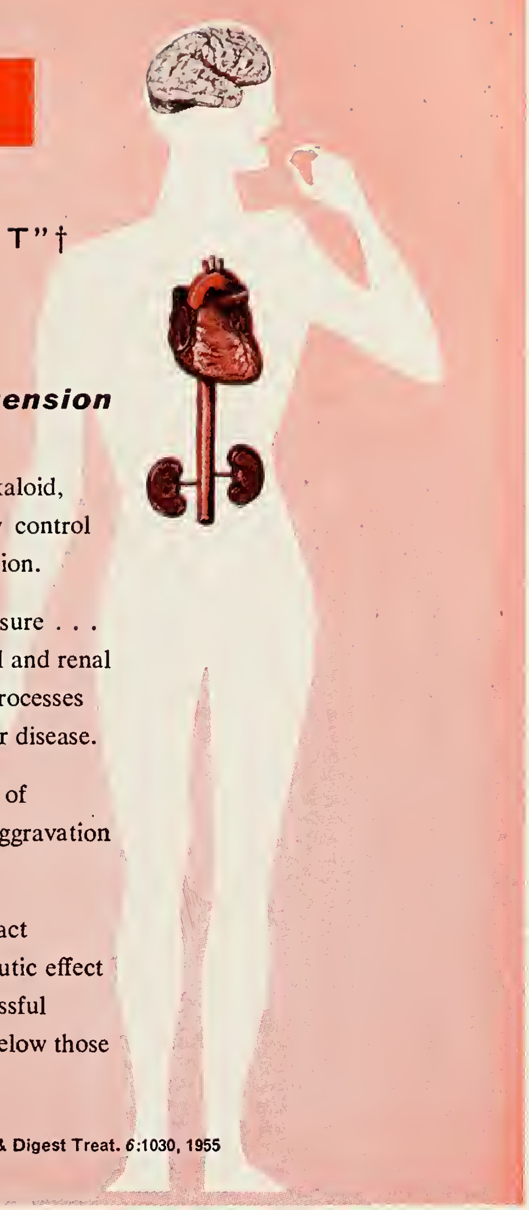
†Cohen, B. M.; Cross, E. B., and Johnson, W.: Am. Pract. & Digest Treat. *6*:1030, 1955



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Bibliography. Orgain, E. S.: Postgrad. Med. *17*:318, 1955. Finnerty, F. A.: Am. J. Med. *17*:629, 1954. McCall, N. L.; Sass, D. K.; Wagstaff, C., and Cutler, J.: Obst. and Gynec. *6*:297, 1955. Cohen, B. M.: New York State J. Med. *55*:653, 1955. La Barbera, J. F.: Med. Rec. and Annals *50*:242, 1956. Voskian, J.; Assali, N. S., and Noll, L.: Surg., Gynec. and Obst. *102*:37, 1956. Crisp, W. E., and McCall, M. L.: Am. Pract. and Digest Treat. *7*:620, 1956. Finnerty, F. A.: Am. J. M. Sc. *229*:379, 1955.

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CALIFORNIA—WANTED ASSOCIATE PERCENTAGE BASIS E.E.N.T. OR MAJOR IN E.N.T., and capable of doing office ophthalmology or vice versa. Very large practice. Give full information, and if possible photograph in first letter. Box 93,565, California Medicine.

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(Continued in Back Advertising Section Page 70)

Test Plan for Oral Polio Vaccine

Dr. Albert B. Sabin, Cincinnati, has suggested that countries where the mass use of killed-virus polio vaccine is not economically feasible might be logical places to test his recently developed live-virus vaccine.

In these countries there is no question of waiting to see just how effective the killed-virus (Salk) vaccine will be over a period of years, he said in a recent issue of the *Journal of the American Medical Association.*

Dr. Sabin, who is with the Children's Hospital Research Foundation, University of Cincinnati College of Medicine, read the article at the fourth International Poliomyelitis Conference in Geneva, Switzerland.

His vaccine, a liquid which is taken by mouth, is made with live polio viruses which have been attenuated, or greatly reduced in potency. After the vaccine is swallowed, the viruses multiply in the alimentary tract and cause the body to develop antibodies against the disease.

Recently completed tests on 110 humans showed that a single feeding of attenuated virus produced resistance to reinfection of the alimentary tract comparable to that found in naturally immune persons, while no such resistance was found in people immunized by killed-virus vaccine., Dr. Sabin said.

One of the problems of a live-virus vaccine is the extent to which the viruses excreted by persons after ingestion may be dangerous to other human beings. In fact, this "represents the greatest obstacle to the immediate widespread use of the best attenuated vaccine," Dr. Sabin said.

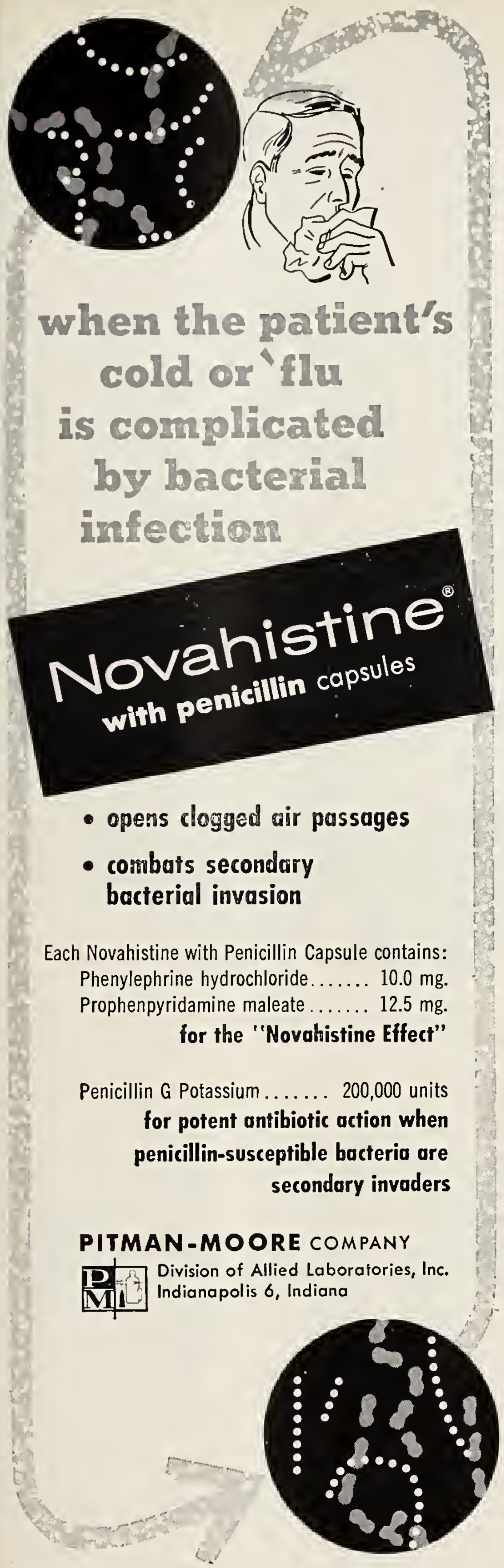
However, his tests indicated that there is reason to believe excreted viruses would be harmless to man, he said. Viruses excreted by humans were injected into the spinal fluid of chimpanzees without harm. In addition, naturally acquired polio viruses excreted by healthy children during nonepidemic periods were found to be stronger than the attenuated viruses excreted after taking vaccine.

Dr. Sabin said his tests on 243 volunteers and other researchers' tests on hundreds of volunteers have all been without harmful effects. It would probably require tests on "tens or hundreds of thousands of individuals" to establish whether an orally administered vaccine is absolutely safe. Where and under what circumstances such tests would be justified must be decided, he said.

The marked reduction in paralytic polio achieved so far by killed-virus vaccine may justify the decision that, in countries where mass application of killed-virus vaccine is feasible, it should be given an opportunity to show what happens over a period of years.

If the passage of time proves that immunity resulting from killed-virus vaccine is "indeed long-

(Continued on Page 54)


when the patient's cold or flu is complicated by bacterial infection

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with penicillin capsules

- **opens clogged air passages**
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Phenylephrine hydrochloride....... 10.0 mg.
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"Breast Plasty" Causes Psychic Disturbance

For one woman an operation to enlarge the breasts caused an emotional disturbance at least as great as the one it was supposed to relieve, stated a Washington, D. C., physician.

The operation, called "breast plasty," builds up "underdeveloped" breasts by implanting plastic sponges behind them. It is sometimes performed for social or economic reasons or for the relief of psychic disturbances, present or potential, presumably caused by having small breasts.

Lieut. Col. Harold F. Hamit (MC), U. S. Army, told of a case which he said indicates that the possibility of later guilt feelings should be added to the list of other known complications which make the operation seem "ill advised."

In this case the left breast developed an open draining sore about a year after a breast plasty had been performed by another physician. After the sponge was removed by Dr. Hamit, the breast healed.

The patient later had the sponge removed from the right breast because she feared similar complications and difficulty in the breast if she became pregnant. In addition, "mammary prominence no longer appealed to her vanity," he said.

On follow-up visits the patient expressed "vague anxieties and possibly a guilt complex" over having had the plastic sponges implanted. In fact, they were "at least equal in magnitude" to any psychic disturbances she had earlier suffered, he said.

After the sponges were removed (during two hospitalizations and four operations), the woman expressed fears that the plastic material might have increased the changes of cancer. She also wondered if the original operation could have influenced her apparent inability to become pregnant. Dr. Hamit reassured her about both questions, although he pointed out that the cancer-causing properties of plastic implants are "simply unknown."

The indications for and the possible hazards of breast plasty, as well as the cancer-causing abilities of plastics are rather ill-defined and nebulous in the medical literature, he said. As far as he knows, no case of cancer attributable to implanted plastics has yet been reported in humans. However, studies have indicated that various types of plastics do cause tumors in rats and other animals.

Some of the other complications which can result from this operation are infection and drainage immediately after surgery; increasing firmness of the plastic sponge which causes a hard mass to form; open draining sores; disruption of breast function or appearance, and possibly cancer.

Dr. Hamit made his report in a recent issue of *Archives of Surgery*, published by the American Medical Association.

WHAT IS COMPOCILLIN-V?

COMPOCILLIN-V is an oral suspension of the hydrabamine salt of penicillin V (phenoxymethyl penicillin). This penicillin is relatively insoluble in acid media, thus it is not inactivated by gastric secretions. For this reason, COMPOCILLIN-V will produce higher blood levels than were possible with oral penicillin G salts, on a dose-for-dose basis. And it's tasty. The appetizing, banana flavor and aroma of COMPOCILLIN-V Suspension appeals to children and adults alike. It's still penicillin—but your tongue never knows it.

INDICATIONS

COMPOCILLIN-V is indicated for the treatment of infections produced by penicillin-sensitive organisms in which oral penicillin therapy is known to be effective. These conditions include: *sinusitis*, *bronchitis*, *cellulitis*, *otitis media*, *pharyngitis*, *Vincent's infection*, *erysipelas*, *scarlet fever*, *tonsillitis* and other infectious conditions.

COMPOCILLIN-V may also be used prophylactically before and after such procedures as tonsillectomy and dental extractions; in patients with a history of rheumatic fever; rheumatic heart disease, and other conditions where secondary infection is a recognized danger.

As with the other penicillin compounds, COMPOCILLIN-V is of no value in preventing common colds or influenza. In the presence of severe infection, with or without bacteremia, oral therapy should always b supplemented by parenteral therapy with penicillin

DOSAGE

The initial recommended dose in acute infections i one or two 5-cc. teaspoonfuls (300,000 units/5-cc. every four to six hours. This should be altered according to the therapeutic response. For prophylactic us a dose of 300,000 units once or twice daily should b sufficient. Dosages for small children should be calculated according to age and weight.

An article published by the American Heart Association[1] stressed that the control of streptococcal infections is essential for the prevention of rheumatic fever and rheumatic heart disease. This may be accomplished by early and adequate treatment of streptococcal infections in all individuals and the prevention o streptococcal infections in patients who have had rheumatic fever.

It was recommended that effective blood levels of penicillin be maintained for a period of at least ten days. For this reason, therapeutic doses of COMPOCILLIN-V are recommended for at least ten days in the treatment of streptococcal infections.

AS A PROPHYLACTIC MEASURE

There is evidence which suggests a widening prophylactic application of penicillin. Lapin[2] observed a

NOW!
Abbott's Ready-Mixed
Compo
the higher blood levels of penicillin V..

ENOVID*

BRAND OF NORETHYNODREL WITH ETHYNYLESTRADIOL 3-METHYL ETHER

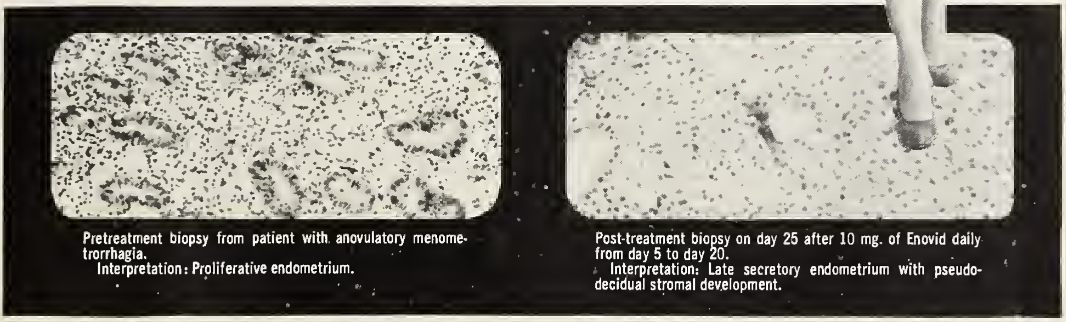
Regulates menstrual disorders through reliable endometropic control

Enovid is Searle's new, orally effective agent designed to provide specific control of menstrual disorders.

Enovid contains norethynodrel, a new synthetic steroid with strong progestational and lesser estrogenic activity. The estrogenic effect, enhanced by the addition of ethynylestradiol 3-methyl ether, prevents spotting or breakthrough bleeding in most patients in whom it would otherwise occur.

Like the normal endocrine action of the corpus luteum, Enovid maintains the integrity of the endometrium during administration of the drug. Moreover, as occurs on withdrawal of the natural hormone, the withdrawal of Enovid results in the flow characteristic of menstruation. Also, as does the natural hormone, Enovid controls the gonadotropic functions of the anterior pituitary glands.

This specific control of the menstrual cycle permits effective treatment of both excessive and inadequate endometrial activity and provides the physician with a dependable agent for treating such disorders as amenorrhea, dysmenorrhea, menorrhagia, metrorrhagia and premenstrual tension.



Pretreatment biopsy from patient with anovulatory menometrorrhagia.
Interpretation: Proliferative endometrium.

Post-treatment biopsy on day 25 after 10 mg. of Enovid daily from day 5 to day 20.
Interpretation: Late secretory endometrium with pseudodecidual stromal development.

Biopsy photomicrographs courtesy of Anna L. Southam, M.D., New York, N.Y.

INDICATIONS AND DOSAGE GUIDE FOR ENOVID

DISORDER	FIRST CYCLE	SECOND AND THIRD CONSECUTIVE CYCLES
Menorrhagia	One or two 10-mg. tablets daily to day 25 of the cycle.	One 10-mg. tablet daily from day 5 to day 25*
Metrorrhagia	One or two 10-mg. tablets daily to day 25 (or for 10 days to establish cycle)	same as above
Amenorrhea (primary or secondary)	One 10-mg. tablet daily for 20 days to establish cycle	same as above
Oligomenorrhea	One 10-mg. tablet daily from day 5 to day 25*	same as above
Premenstrual Tension	One 10-mg. tablet daily from day 5 to day 25*	same as above
Dysmenorrhea	One 10-mg. tablet daily from day 5 to day 25	One 10-mg. tablet daily from day 5 to day 25
Inadequate Luteal Phase	One 10-mg. tablet daily from day 15 to day 25	One 10-mg. tablet daily from day 15 to day 25

*The administration of Enovid prior to day 15 may interfere with ovulation; if anovulatory cycles are not desired, one 10-mg. tablet of Enovid should be administered daily from day 15 to day 25.

SPECIAL NOTES: (1) If nausea is encountered, the daily dose may be cut in half or given in divided doses for three days and then return to regular dose. (2) Intermenstrual spotting is usually evidence of inadequate dosage. This type of bleeding is usually controlled by increasing the dosage one 10-mg. tablet daily. (3) Following discontinuance of treatment, the intermenstrual interval of the first untreated cycle is commonly prolonged for approximately one week.

FORMULA: Each 10-mg. tablet of Enovid (available as uncoated, scored, coral tablets) contains norethynodrel, a new synthetic steroid, with 0.15 mg. of ethynylestradiol 3-methyl ether.

*Trademark of G. D. Searle & Co.

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SEARLE | *Research in the Service of Medicine*

Drinking Denatured Alcohol Causes Hypoglycemia

Drinking denatured alcohol may produce an illness similar to that of the "vomiting sickness of Jamaica," which is caused by eating wild berries, an Alabama physician recently stated.

A severe and sometimes fatal drop in the amount of sugar in the blood is a sign of both illnesses, he said in a recent issue of the *Journal of the American Medical Association.*

Just why such a drop in blood sugar level, called hypoglycemia, results from drinking denatured alcohol or eating one kind of wild Jamaican berry is unknown, Dr. William J. Hammack, Birmingham, said.

It may be associated with malnutrition, a frequent occurrence in chronic alcoholism, in which the liver is damaged. The liver is no longer able to perform its normal breakdown of sugar into simpler components that can be used by the body.

Whatever the cause of hypoglycemia, it is a "grave medical emergency" because of the possibility of rapid brain damage or death. It must be recognized and treated immediately, Dr. Hammack said. Intravenous administration of dextrose solution helps relieve the condition.

Dr. Hammack studied 36 patients admitted to University and Veterans Administration Hospitals, Birmingham, after they had drunk a shellac solvent (tradenamed Solox). The solvent's main ingredients are pure ethyl alcohol and denatured wood alcohol.

Solox intoxication is seen rather frequently in large city hospitals, he said. Most patients are chronic alcoholics and many drink the solvent for years before becoming acutely ill. Many are severely malnourished as a result of substituting alcohol for food.

The patient is usually unconscious on admission to the hospital. If he is conscious, he may complain of blurred vision, intense abdominal pain, and burning of the eyes. The breath has a characteristic foul, chemical odor, similar to wood alcohol.

Other symptoms may include rigidity of limbs, respiratory difficulty, extreme irritability, convulsions, acidosis and hypoglycemia. The central nervous system symptoms are apparently caused by the lack of blood sugar.

With prompt treatment, the patient usually recovers immediately; however, physicians must be alert to possible complications such as pneumonia, stated Dr. Hammack.

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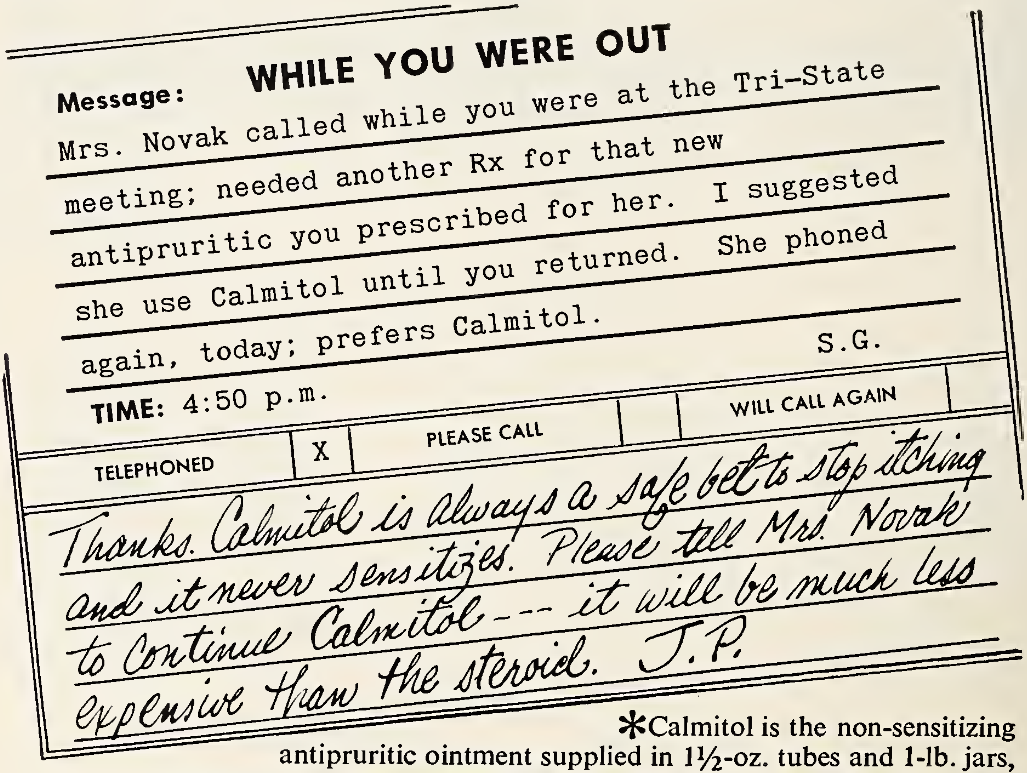
PAGE 36



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	Saturated		Oleic		Linaleic		Linalenic		Arachidanic		
Fat	Ave.	Range	Ave.	Range	Ave.	Range	Ave.	Range	Ave.	Average	Range
Butter	—	46-48	—	—	4.0	—	1.2	—	0.2	—	26-42
Coconut oil	—	75-88	—	5-8	—	1.0-2.5	—	—	—	—	7-10
Corn oil	13	11-15	—	23-40	56	46-66	—	0.0-0.6	—	126	113-131
Cottonseed oil	26	21-30	27	22-36	47	34-57	—	—	—	105	90-117
Lard	43	—	46	—	10	15.6	0.5	—	0.5 (2.1)	—	53-77
Linseed oil	—	6-12	—	13-31	—	10-27	—	30-64	—	—	170-204
Margarine	23	15-23	62	59-77	5.8	5-11	—	0.1-0.9	0	81	74-85
Olive oil	—	8-16	—	53-86	—	4-20	—	—	—	—	80-88
Peanut oil	17	14-22	54	44-65	29	20-37	—	—	—	98	90-102
Shortening	25	17-45	62	43-79	5	3-12	—	0.2-0.6	0-0.5	78	59-80
Soybean oil	15	11-18	25	18-58	55	28-62	5.1	0.3-10	—	130	100-143
Tallow (beef)	53	—	42	—	4	5.3	0.5	—	0.5	—	40-48

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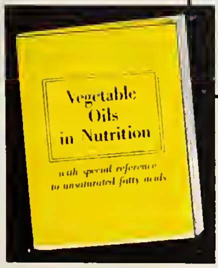
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Test Plan for Oral Polio Vaccine

(Continued from Page 36)

lasting," there would be no need for considering the use of a live-virus vaccine. But if time proves that a killed-virus vaccine gives immunity of relatively short duration, then the use of live-virus vaccine may be considered.

However, waiting for time to determine the value of a killed-virus vaccine may not be the thing to do, he said. The effectiveness of killed-virus vaccine is at best only about 75 per cent. In addition, it has been shown that previous inoculation with killed-virus vaccine does not accelerate antibody response when oral vaccine is given. This suggests that there is no basis for expecting long-lasting immunity from killed-virus vaccine. It has also been shown that killed-virus vaccine does not alter the susceptibility of the intestinal tract to infection with live-virus vaccine.

Considering these factors, the philosophy of waiting for time to show the value of killed-virus vaccine might "deprive large numbers of individuals from protection against paralysis, which earlier trials of an orally administered live-virus vaccine might provide," he said. "The decision is obviously not an easy one."

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Early Rehabilitation Needed After Spinal Cord Injury

Early rehabilitation training after a spinal cord injury reduces the cost and length of training and the dangers of other physical complications, four New York doctors recently stated.

In addition, rehabilitation helps patients become independent in movement and self-care, thus allowing them to "live their lives with greater dignity and deeper satisfaction," they said in a recent issue of the *Journal of the American Medical Association.*

They pointed out that the problem of spinal cord injury and paralysis has largely been identified with war injuries, because of publicity given to rehabilitation techniques developed during World War II. However, "it is not generally appreciated" that during World War II only 2,500 such casualties occurred among American troops, while 15,000 such disabilities occurred among civilians.

Since the end of the war, attention has been focused on the problem among civilians, and specialized centers for rehabilitation are growing, although not nearly rapidly enough, they said.

All paralyzed patients face the probability of many physical complications occurring. Prolonged

(Continued on Page 62)

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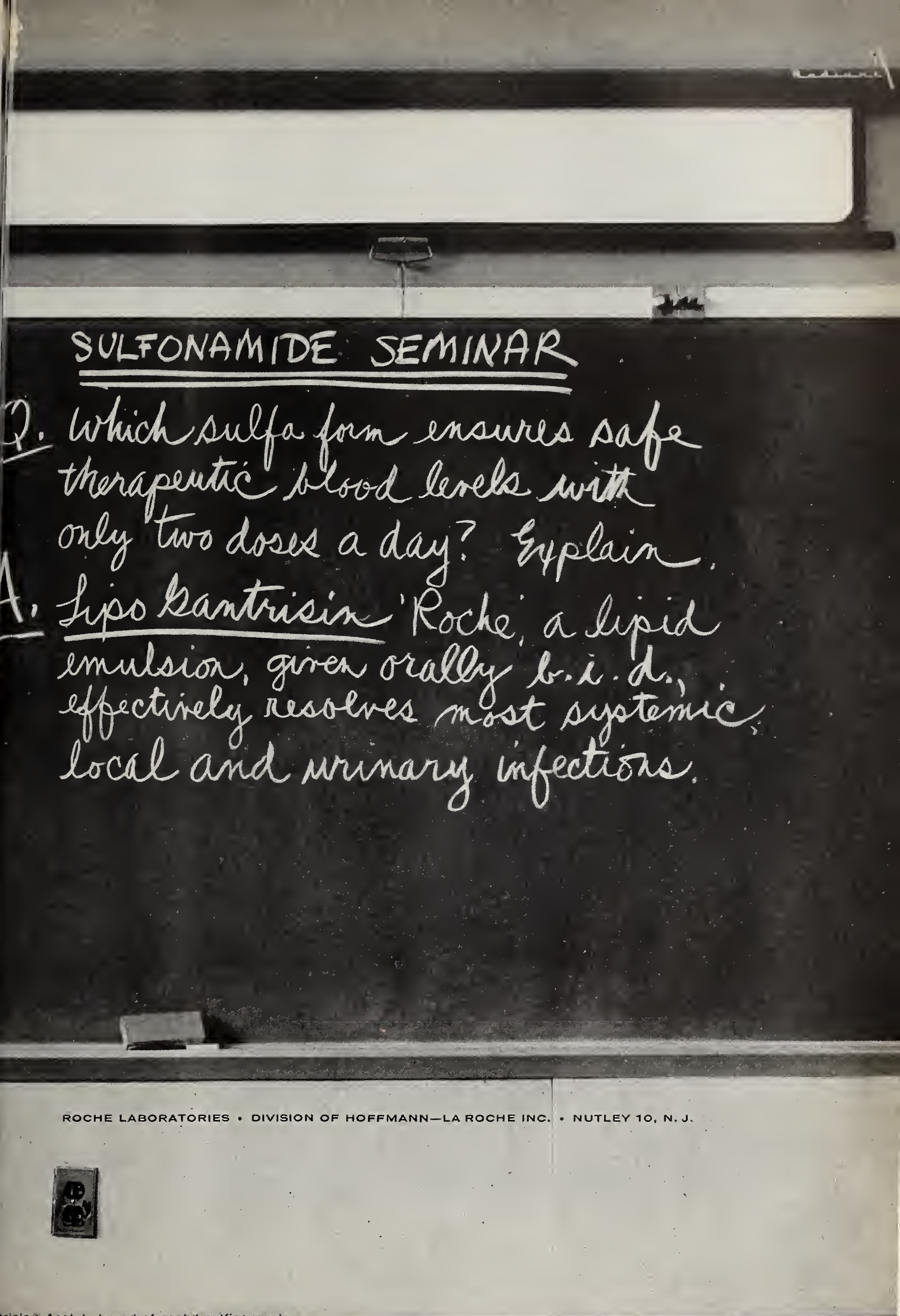

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Early Rehabilitation Needed After Spinal Cord Injury

(Continued from Page 58)

bedrest appears to increase the chances of such urologic, neurological, and orthopedic complications. The earlier rehabilitation is started, the less the danger of these, he said. In addition, the period of rehabilitation is shortened, because fewer surgical and medical corrections are needed. In turn, the cost of training is reduced. More important, the rehabilitation training helps these paralyzed patients in their psychological adjustments, the doctors said.

Thirty-one patients paralyzed by spinal cord injuries were treated at the Institute of Physical Medicine and Rehabilitation of the New York University-Bellevue Medical Center. For the 20 patients with complications, the length of training averaged 30 days longer than for those without complications because of time spent on surgical and medical care.

The average cost for those needing treatment for complications was $4,467.28, as compared with $1,794.46 for those requiring only rehabilitation training.

The patients were sent to New York by the Division of Vocational Rehabilitation of the Department of Education of Georgia. The 26 men and five women ranged in age from 18 to 46 years and the duration of their illnesses ranged from less than one year to more than 10 years. Their spinal cord injuries and paralysis resulted from auto, diving and hunting accidents, blows from moving objects, falls and gunshot wounds.

At the time of admission, 22 were incapable of any type of ambulation and 10 were bed patients. At discharge 27 had some degree of proficiency in walking with braces and crutches, and 24 were able to get in and out of a car unassisted.

A one-year follow-up showed that most of these patients had maintained, or improved, their ambulation skills, and that 42 per cent had returned to work and 32 per cent were in training. This is in contrast to the 22 per cent who were employed and 78 per cent who were economically dependent before training.

Nearly all the patients felt they had made a "good" or "very good" psychological adjustment, even in the face of continuing physical complications, lack of employment and lack of educational background. The doctors attributed this to the fact that these people had gained some measure of independence in self-care and movement, which brought with it gains in "dignity and psychological health."

The authors are Drs. S. Harry Berns, Edward W. Lowman, Howard A. Rusk and Donald A. Covalt of the New York University-Bellevue Medical Center.

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California MEDICINE

OFFICIAL JOURNAL OF THE CALIFORNIA MEDICAL ASSOCIATION

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Volume 87 OCTOBER 1957 Number 4

Modern Treatment of Abruptio Placentae

JAMES A. MERRILL, *M.D.*, San Francisco

• Abruptio placentae, in its severe form, causes the most hazardous type of third trimester bleeding. The severe grade may be accompanied by systemic effects, some of which are potentially lethal. A knowledge of these, as well as a system of grading the severity in terms of maternal risk, is essential to an understanding of therapy. Cases should be graded in severity from I to III on the basis of clinical factors. A delay in delivery, in Grade III, may result in an increased incidence of serious maternal complications. In Grade II, immediate cesarean section has reduced the fetal mortality rate.

In managing Grade III premature separation of the placenta, the following steps should be carried out: (1) Laboratory study, including blood cross-matching and determination of plasma fibrinogen; (2) vaginal examination to confirm the diagnosis and to rupture of the membranes; (3) indicated therapy of systemic effects with fresh whole blood and fibrinogen, before considering any operative delivery; (4) election of a mode of delivery which will terminate the pregnancy in less than about six hours after onset of separation; this will frequently be cesarean section; (5) careful attention to postpartum care to avoid shock and renal failure.

In Grade II, the same principles of therapy obtain. If the fetal heart tones are present, however, and vaginal delivery is not imminent, immediate cesarean section is justified. Complete conservatism, with vaginal delivery, is recommended in Grade I.

HEMORRHAGE CONTINUES to be one of the major causes of maternal death. Deaths due to infection have decreased sharply but there has been much less change in the proportionate number of deaths due to other members of the classical triad—toxemia and hemorrhage. The work of several maternal welfare committees indicates that probably 75 per cent of hemorrhagic deaths are preventable. Therefore, in order to reduce maternal mortality further, the prevention, control and treatment of hemorrhage must be improved.

Premature separation of a normally implanted placenta, which occurs in approximately 1 per cent of all viable pregnancies, is probably the most hazardous of the causes of third trimester bleeding. While it is for the most part only the severe grade of abruptio placentae that causes death, the mortality rate associated with this grade approximates 10 per cent. Fortunately, the severe form is not common, occurring in about 15 per cent of cases of premature separation. Often the only evidence of premature separation is that found by pathologic examination of the placenta. Moreover, diagnosis and treatment of abruptio placentae are frequently linked with another complication of pregnancy—toxemia.

There has been considerable change in the management of this complication of pregnancy in recent years. Not long ago medical students were taught an ultra-conservative approach which included rupture of the membranes, packing of the cervix and vagina tightly, application of a tight "Spanish windlass," and anticipation of vaginal delivery regardless of fetal or maternal condition. Then less conservative

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From the Department of Obstetrics and Gynecology, University of California School of Medicine, San Francisco 22.

Presented before the Section on Obstetrics and Gynecology at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

attitudes developed which, in extremist quarters, was carried to recommendation of immediate abdominal delivery in every case of abruptio placentae. Increasing knowledge of this complication of pregnancy has brought about a more rational approach to the problem. Even so, differences of opinion exist with regard to the relative merits of conservative and radical approaches in their modified forms. Essential to an understanding of the therapeutic principles involved is a knowledge of the systemic effects of abruptio placentae and a proper grading of severity in terms of maternal risks.

SYSTEMIC EFFECTS OF ABRUPTIO PLACENTAE

Various lines of investigation have shown the severe grade of premature separation of the placenta to be accompanied by systemic effects, some of which are potentially lethal, and which include:

1. Clinical shock, sometimes out of proportion to blood loss or hypotension.
2. Disseminated deposition of fibrin.
3. An *in vivo* defibrination of the blood with a decrease or absence of fibrinogen, sometimes resulting in incoagulable blood.
4. Ischemia of the renal cortex, leading to varying degrees of necrosis.
5. Activation of a fibrinolysin in the plasma.

It is now widely accepted that acute intravascular coagulation with disseminated deposition of fibrin is the basic pathologic change of severe cases of premature separation of the placenta, and that all of the systemic events may result from the escape of biologically active materials from the placental separation site into the maternal circulation. Liberation of thromboplastic substances initiates the process. Prothrombin is converted into thrombin which in turn converts fibrinogen to fibrin, leading to deposits of fibrin throughout the body. This defibrination brings about a reduction or absence of plasma fibrinogen and the blood may become incoagulable. The critical level is about 100 to 120 mg. of fibrinogen per 100 cc. of plasma. Fibrin deposits, or perhaps the hematoma tissue extracts, incite an adaptive appearance of fibrinolytic enzymes. Thrombin also causes lysis of platelets, which largely disappear from the circulation during this process. Thrombocytopenia is common. The destroyed platelets release serotonin, a potent vasoconstrictor which, in rats, has been shown to produce renal ischemia and cortical necrosis. While, in humans, the effect of shock and fibrin deposition are of primary importance in this renal lesion, serotonin may play a role in renal cortical necrosis.

THE GRADES OF ABRUPTIO PLACENTAE

It must be borne in mind that the systemic effects of abruptio placentae are essentially limited to the severe grades—a fact too often ignored. Therefore, the grading of severity in abruptio placentae is of importance in determining the therapy. The system of grading should express in some way the approximate maternal risk resulting from the placental separation. The severity of the disease is not dependent upon the etiologic factors and is not always related to the extent of separation, but rather to the amount of concealed hemorrhage. In a previously reported study of various aspects of the clinical management of abruptio placentae, in three hospitals of the San Francisco Bay Area, the following system of grading severity was followed:

Grade 0: These are clinically unrecognized before delivery and the diagnosis is based upon examination of the placenta.

Grade I: These show external bleeding only, or mild uterine tetany, but no evidence of maternal shock.

Grade II: In this group there is uterine tetany, ordinarily with uterine tenderness, possibly external bleeding, fetal distress; but no evidence of maternal shock.

Grade III: Here there is evidence of maternal shock or coagulation defect, uterine tetany and intrauterine death of the fetus.

In this study it was felt that the incidence of maternal complications was related to a conservative approach to the problem and a delay in delivery. In relating the maternal complications in Grade III cases to the time elapsing between onset of abruptio placentae and delivery, it was noted that in 11 cases in which delivery was carried out less than six hours after onset, serious complications developed in only two—a hemorrhagic tendency in both instances. When delivery was delayed more than six hours, there was an increase in frequency of serious complications. Serious complications developed in each of six cases in which there was a delay of more than 14 hours; three of the patients became anuric and died.

Fetal mortality in Grade III cases is 100 per cent, by definition. It is only in the milder grades, therefore, that the mode of delivery can be expected to influence fetal mortality. The author found that the fetal mortality rate was significantly reduced by immediate cesarean section in the case of patients with Grade II abruptio placentae. Other investigators have reported similar observations.

It is apparent that the treatment must depend upon the severity of the premature separation as judged clinically. In dealing with premature separation of severe grade, the following steps should be carried out:

1. Laboratory Study

Typing and crossmatching of blood should be done immediately, as well as determination of hemoglobin, hematocrit and estimation of plasma fibrinogen. If possible, a rapid laboratory test for fibrinogen should be done. Unfortunately, the usual laboratory methods for fibrinogen determination take a long time and are impractical in acute situations or at odd hours of the night. More widely used are the rapid tests which may be carried out at the bedside. The one most frequently used is the "clot observation test": A specimen of 5 cc. of blood is observed in a test tube, to see if a firm, normal-sized clot forms. If a clot does not form, it can be assumed that the fibrinogen concentration is less than 60 mg. per 100 cc. and that a serious coagulation defect exists. The size and stability of the clot are more important than the time required for clotting. If clotting occurs, the test tube should be incubated at 37.0° C. for one hour. If hypofibrinogenemia is present, a soft fragile clot will form in which red cells will be extruded as the clot retracts, leaving only a small nubbin, or a completely disintegrated clot. Other rapid methods in which thrombin is used as a reagent have been described. Most convenient of these is marketed by Ortho Company under the trade name of Fibrindex®. Adequate instructions come with each package.

2. Vaginal Examination

Vaginal examination should be done as soon as the patient's condition will permit. If the diagnosis is confirmed, the membranes should be ruptured. They should be ruptured irrespective of the condition of the cervix. Effective labor may result even in a patient with an "unripe" cervix. Equally important, amniotomy, by lessening the intrauterine pressure, may decrease the autoinfusion of tissue extracts from the separation site and halt the progression of systemic effects.

3. Therapy of Systemic Disease

Treatment of systemic disease must include prompt replacement of fibrinogen, if indicated, and ample quantities of fresh whole blood. Bank blood is of less value in restoring fibrinogen levels and may actually lower them. A minimum of 4 gm. of fibrinogen is usually recommended, but as much as three times this amount may be needed to restore normal hemostasis.

Frequent determinations or estimations of plasma fibrinogen will enable the physician to determine the actual amount needed. Fibrinogen should be administered until a stable clot will form. Hepatitis may occur following administration of fibrinogen, although it is uncommon. British investigators suggest that when human fibrinogen is not available, triple or quadruple-strength reconstituted plasma may be used. One unit of quadruple-strength plasma contains about 4.4 gm. of fibrinogen. The use of plasma expanders is probably contraindicated. There is considerable clinical and experimental evidence to show that dextran can exert an unfavorable action on the coagulation mechanism with a decrease of fibrinogen levels. Thus, in borderline cases, the use of dextran may be enough to tip the balance and convert subclinical fibrinogenopenia into a state of incoagulable blood. I believe that when a coagulation defect or anuria is present, a vasodilator drug should be used immediately to aid in preventing kidney necrosis. Apresoline® (hydrazinophthalazine) 30.0 mg. intravenously, is recommended.

All the foregoing therapy should be carried out before considering an operative delivery. Failure to correct the systemic effects of abruptio placentae prior to operative intervention may prove hazardous because of clotting defects, and may lead to unnecessary hysterectomy to control persistent uterine bleeding. However, once the coagulation defect and shock are corrected, and the blood volume is restored, too great a delay in delivery is dangerous.

4. Mode of Delivery

A mode of delivery should be elected which will terminate the pregnancy in less than six hours after the onset of separation. (Some investigators place the time limit at 12 hours.) The choice will be based upon the condition of the cervix, the state and effectiveness of labor, and the degree of shock. In suitable cases Pitocin® (oxytocin) given intravenously may be used safely to provide adequate labor. Cesarean section will frequently be the method of choice in cases in which the cervix is not effaced or dilated. The presence of a dead fetus should never be a deterrent to cesarean section if the maternal condition warrants it.

5. Postpartum Care

Postpartum care requires careful attention. Blood lost should be carefully replaced. It should be noted that the measured retroplacental clot represents less than one-half of the total blood loss. Previously unrecognized hypertension may become apparent. In recent years, the improvement in methods of treating hemorrhage has resulted in an increase in the proportion of deaths from renal failure. Thus, of 32 patients in one large British series who died of abruptio placentae, 15 died of renal failure after they had survived the acute phase. Renal failure, and particularly poorly managed renal failure, was conspicuous in the present study. It results from bilateral cortical necrosis or tubular nephrosis, secondary to loss of blood and shock. Great care must be given to fluid and electrolyte balance. Overhydration can be especially harmful. In some cases, artificial dialysis may be necessary. Fibrinogen levels rapidly return to normal following evacuation of the thromboplastin source. However, the renal lesions are not always—or so rapidly—reversed.

The principles of treatment are the same in the moderate grade, Grade II, which if inadequately managed may progress to Grade III. However, systemic effects are uncommon and shock is not a factor. If fetal heart tones are present and vaginal delivery is not imminent, immediate cesarean section is justified in the interest of the baby as well as the mother.

In the milder cases—Grade I and 0—which rarely progress to Grade II, conservative management is indicated. Replacement of lost blood is important. Rupture of the membranes and artificial stimulation of labor with intravenous administration of Pitocin, when necessary, will almost always result in a successful outcome and vaginal delivery.

University of California School of Medicine, San Francisco 22.

REFERENCE

Page, E. W., King, E. B., and Merrill, J. A.: Abruptio placenta—dangers of delay in delivery, Obst. & Gynec., 3:385-393, April 1954.

"Tags" for Patients Taking Anticoagulants

Increasing numbers of patients are receiving prolonged therapy with anticoagulants. Askey et al. recently reported on the extraction of teeth, without incident, by dentists who were not told by the patients that they were taking dicoumarol. Moreover there have been reports in this country and abroad of replacement of aortic and iliac arteries and of mitral commissurotomy while patients have been on full anticoagulant therapy without ill effects. Such reports are reassuring, but there are certain other risks with regard to persons receiving dicoumarol—for example, accidental injury either internal or external, in which the patient can not or in excitement does not tell whoever administers first aid that he is taking the anticoagulant.

For this reason, I have such patients carry a card on which I print in red ink the following:

> "I AM TAKING DICOUMAROL (OR........................) AS A MEDICINE AND BLOOD ANTICOAGULANT. IN CASE OF INJURY OF EVEN MINOR DEGREE GET MEDICAL ATTENTION IMMEDIATELY AND CONTROL BLEEDING BY CONTINUOUS FIRM PRESSURE AT SITE OF BLEEDING. MY BLOOD IS TYPE ....,"

The most practical place to carry this card (if the person drives a car) is at the back of the patient's drivers license in a plastic container, as this is the most frequently looked for identification, and perhaps also on the steering post above the automobile registration card.

Robert L. Stern, M.D.

Beverly Hills

Modern Treatment of Placenta Previa

A Study of 234 Cases

WILLIAM BUSTER McGEE, *M.D.*, and
THOMAS A. O'SULLIVAN, *M.D.*, San Diego

• Study was made of 234 cases of placenta previa occurring in 48,752 deliveries at one hospital during the period 1947-1956. There was no maternal mortality. The uncorrected fetal mortality rate for all weight groups was 21.4 per cent. The rate varied from 88 per cent in babies under 1,500 grams to 5.7 per cent in babies over 2,500 grams. Initial conservative management to permit gestation to continue as close to term as possible is advisable.

Ultimate termination of the pregnancy by cesarean section under spinal anesthesia gave the best results. The incidence of transverse and breech presentations in association with placenta previa was inordinately high. A progressive trend toward more conservative treatment of placenta previa was noted in the present series, with a concomitant reduction in fetal mortality rate.

During the years 1947 through 1956 there were 48,752 deliveries at Mercy Hospital, San Diego. Placenta previa occurred in 234 cases (0.48 per cent). Only cases of bleeding in which the diagnosis was proven either by pelvic examination or cesarean section were included in this series. Of the mothers, 192 (82 per cent) were multigravida and 42 (18 per cent) primigravida. Fifty-three (23 per cent) had had one or more previous abortions, about the same proportion as reported by Davis and Campbell[2] and other investigators. The average age of the patients was 29 years; the average gestation, 35 weeks. The average length of time from onset of bleeding to delivery was 13 weeks. All the patients said there was no pain associated with the bleeding. By Greenhill's[6] classification they were divided as follows: Central (placenta completely covering os), 90 (38.5 per cent); partial (placenta covering part of os), 125 (53.4 per cent); low implantation (placental edge palpable lateral to the os), 19 (7 per cent).

DIAGNOSIS

The characteristic, but by no means pathognomonic symptom of placenta previa is painless vaginal bleeding which may occur any time after the placenta is established but usually during the third trimester. The blood is usually bright red. Recurrent episodes are common and the quantity varies from a few drops to profuse hemorrhage. In only about 30 per cent of the cases of painless vaginal bleeding in the third trimester of pregnancy is the symptom due to placenta previa. According to Fish and coworkers[5] and Ferguson,[4] rupture of the marginal sinus is the cause of one-third of the cases of painless antepartum bleeding. Some of the cases classified as partial placenta previa in the present series, particularly those in which there was no bleeding until labor began, may well have been cases of rupture of a marginal sinus of a low implanted placenta. In a series of cases of painless bleeding in the last trimester reported by Hobbs and Price,[9] placenta circumvallata was the cause in 22 per cent.

In the present series there were 105 (45 per cent) patients who lost an estimated 500 cc. or more of blood. One hundred and forty-five patients were given one or more units of blood. There were 18 transverse and 18 breech presentations, an inordinately high incidence.

In only seven cases in the series was diagnosis of placenta previa made by x-ray visualization. Dipple and Brown[3] and Watson,[15] using soft tissue x-ray technique, were able to visualize the site of the placenta in 90 per cent of cases. Ball and Golden[1] stressed the value of the relationship of the fetal head (in vertex presentation) to the midsagittal plane as an aid to diagnosis. Prentiss and Tucker,[15] using air cystograms, were able to diagnose placenta previa with 98 per cent accuracy in vertex presentation.

We believe these important diagnostic aids should be used more frequently than was done in the present series, particularly when bleeding is not excessive and expectant treatment is being used.

To make a diagnosis of placenta previa in cases of profuse bleeding or of minor bleeding near or at term, it is necessary to do a sterile vaginal examination. Almost all cases in this series were diagnosed by pelvic examination. Although it has always been customary to advocate steril vaginal examination in the operating room, with all preparations

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Presented before the Section on Obstetrics and Gynecology at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

made for immediate cesarean section, in practice it has been found quite safe to do it in the delivery room, provided compatible blood is available and the operating room has been alerted to the possibility of immediate cesarean section. Catheterization should be done to make sure the bleeding is not in the urinary tract. The possibility the blood is coming from the rectum also must be investigated. First, a speculum examination is made to rule out bleeding from varicose veins in the vagina and cervix, carcinoma of the cervix, cervical polyps, abruptio placenta and ruptured uterus. By gentle pelvic examination. trained fingers can frequently palpate the placenta through the fornices of the vagina. If there is an intracervical examination, it should be done very gently to try to decide whether bleeding is from a central or partial placenta previa or is from other causes. The dangers of starting bleeding by palpating inside the cervical canal should always be kept in mind. Rectal examination should never be done on a pregnant patient with vaginal bleeding.

PROGNOSIS

The maternal prognosis in placenta previa is good if the patient is put in hospital promptly and adequate blood is available. There were no maternal deaths in the present series. Paalman and Hunt,[13] who collected data on 2,147 cases of placenta previa noted a maternal mortality rate of 1.5 per cent, with death due to hemorrhage in the vast majority of cases. The total uncorrected fetal mortality in the present series was 50 (21.4 per cent). Although Hibbard[8] reported that "in our hands infants as small as 1,588 grams were on the average as well off when delivery was immediate as when delivery was delayed." In the present series delayed delivery was associated with much better fetal salvage results:

	Number (Per Cent of Series)	Dead (Per Cent)
Less than 1,500 grams	25 (17)	22 (88)
1,500 to 2,500 grams	68 (29)	20 (29)
2,500 grams and over	144 (54)	8 (5.7)

Greenhill[7] reported three times as many fetal abnormalities in placenta previa as in normal, uncomplicated deliveries. In the present series there was no indication of abnormalities incompatible with life, but autopsy was not done in all cases of fetal death. The fetal mortality rate in cases of cesarean delivery was 19 per cent; in cases of vaginal delivery, 28 per cent. This does not reflect a true statistical difference, for it was often elected not to put a scar on the uterus when it was felt by the attending obstetrician that the fetus was previable or dead.

The various complications and the number of cases in which each occurred in the series were: Transverse presentation, 18; breech presentation. 18; toxemia, 10; associated abruptio placenta, 13; cesarean hysterectomy, 4; shock, 4; prolapsed cord, 2; fibroids. 2; postpartum hemorrhage, 2; anuria, evisceration and placenta accreta, 1 each.

TREATMENT

The treatment of placenta previa has become more conservative in the past 15 years. In the present series cesarean section was done in all cases in 1948, in 47 per cent of cases in 1956. MacAffee[11] was an early advocate of conservative treatment, and on this point Johnson[10] stated most emphatically that placenta previa is not fatal and that the patient will not bleed to death if let alone. Overstreet and Trout[12] noted that in 95 per cent of cases bleeding in the third trimester stopped in 24 hours with no other treatment than bed rest and mild sedation. Therefore there need be no hurry to do a pelvic examination. It can be delayed while the bleeding is subsiding—assuming compatible blood is on hand for transfusions if necessary. Then, when conditions are ideal, the pelvic examination can be done. However, a patient should never be discharged from the hospital without this final diagnostic check.

All patients with bleeding in the last trimester should be put in hospital and blood for transfusions made available. The patient's blood should be examined and if anemia is present enough blood should be given to restore the hemoglobin content to within normal limits. X-rays should be taken to locate the site of the placenta, estimate the maturity of the baby and determine whether fetal abnormalities are present. At this time the method of delivery should be decided. If the patient is not bleeding profusely she should be kept in the hospital at bed rest and if the weight of baby is estimated to be under 2,500 grams, pregnancy should be permitted to continue because of the greater chance of fetal salvage. Since about 80 per cent of patients with placenta previa are multiparous, vaginal delivery can be safely carried out in many cases of partial previa. This would depend on the size of the baby, the ripeness of the cervix and the condition of the mother. We believe that in all cases of central placenta previa delivery should be by cesarean section.

If vaginal delivery is decided upon, the membranes should be ruptured and the patient permitted to go into labor. Although Johnson and Greenhill have expressed the belief that Pitocin® is contraindicated in the presence of placenta previa, our opinion is that if the contractions are irregular or ineffectual, the careful administration of dilute Pitocin (5 units in 500 cc. glucose in water) intravenously, under the constant supervision of the attending obstetrician, is safer and more effectual than the use of Willets traction forceps. Twelve of the patients in the series were given Pitocin as described and except for vaginal laceration in one case there were no complications ascribable to the preparation. Use of the Voorhees bag and Hicks version and extraction methods of delivery are mentioned only to be decried.

The attending obstetrician should not attempt to hurry the labors of a patient with placenta previa, for very often the blood supply to the lower uterine segment makes the placental site friable and easily torn or ruptured. It is well to have an 18 gauge needle in the vein with slow glucose infusion running should it be necessary to treat for severe hemorrhage or shock. When the head of the baby is on the perineum, low forceps delivery can be done, but it is very dangerous to try to deliver the baby unless dilation is complete. It was almost routine in the present series to give ergonovine, 0.2 mg. intramuscularly, with the baby being delivered slowly. We are opposed to the Credé expression of the placenta, although the Brandt-Andrews method may be tried. If this method fails, we do not hesitate to remove the placenta manually. If the bleeding continues at the end of the third stage, 10 units of Pitocin can be given intravenously and the Dickinson method of massaging the uterus and compressing the lower uterine segment against the spinal column tried. The vagina and cervix should be inspected and any lacerations and bleeding vessels sutured. If this does not control the bleeding the uterus and vagina should be firmly packed with gauze. Bleeding through this pack is an indication for immediate hysterectomy.

Saddle block was the anesthetic method of choice for vaginal delivery, although many patients needed only light gas anesthesia and local infiltration. We are opposed to cyclopropane because of the added danger to the fetus and because it precludes the use of Pitocin.

Of the 174 babies delivered by cesarean section, 33 (19 per cent) died; 17 (28.3 per cent) of the 60 delivered vaginally died. In 160 cases (93 per cent) low spinal anesthesia was used for cesarean section, and in 29 of these cases (18 per cent) the baby died. In 13 cases (7 per cent) cyclopropane was used; four of the babies died.

We do not believe that clamping the uterine arteries from below will control the postpartum hemorrhage, since bleeding can continue from the collateral circulation of the ovarian arteries.

DISCUSSION

From review of the present series it seems that the trend in the treatment of placenta previa in Mercy Hospital is to permit gestation to continue as close to term as possible. If vaginal delivery is contraindicated because of profuse bleeding or central placenta previa, then cesarean section should be done with low spinal anesthesia. Should vaginal examination cause profuse bleeding, the vagina may be packed to control the bleeding until cesarean section is done.

Although there is a trend toward more selective use of cesarean section, our results with vaginal delivery are still not as good as with abdominal delivery. There seemed to be little question that if bleeding was sufficient to indicate pregnancy should be terminated, cesarean section was the treatment of choice rather than rupture of the membranes and the use of Pitocin, unless early safe vaginal delivery could be anticipated.

Spinal anesthesia was associated with the best results; but it is to be noted that since in Mercy Hospital it is the method of choice for most elective operations, it may be assumed that when cyclopropane was used it was because the patient had some contraindication to spinal anesthesia.

Low cervical section was done in 130 of the 143 cases of abdominal delivery in the series, and low spinal anesthesia was used in 121 of those cases. Although we usually use a transverse incision in the lower uterine segment for cesarean delivery in uncomplicated cases, we believe that a longitudinal incision in the lower segment is better in cases of placenta previa, particularly if the placenta is attached to the anterior wall. A small incision can be made in the lower uterine segment and easily extended with the two index fingers. If the uterine wall is slowly and carefully cut down to the placenta, many of the large blood vessels can be clamped with Pennington forceps. If it is necessary to tear through the placenta, the baby should be delivered immediately and the cord clamped in order to prevent fetal anemia from direct loss of blood. One of the advantages of the low cervical section is that the placental site can be seen and any areas of bleeding sutured and ligated.

All babies so delivered should have repeated blood examination, with replacement if necessary. If there has been much bleeding, repeated determination of fibrinogen content is advisable. The blood loss during the antenatal period and during delivery should be replaced. A very careful matching of blood should be done to prevent reactions.

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The Natural History of Mycosis Fungoides

**EUGENE M. FARBER, *M.D.*, HAROLD M. SCHNEIDMAN, *M.D.*,
and JOSE LLERENA G., *M.D.*, San Francisco**

• Mycosis fungoides is a progressive, fatal disease. Its relationship to lymphoblastomas is definite.

No specific treatment is available. Palliation may be brought about by many unrelated modalities.

MYCOSIS FUNGOIDES was first described as an entity by the French dermatologist, Alibert, in 1806.[22] Between that date to 1936, 546 cases were reported in the world literature.[15] Alibert named the disorder *pian fungoide* because of the resemblance to yaws. but at a later date (1835) he used the appellation *mycosis fungoides.* The term *mycosis* was used to describe the mushroom-like tumors; there was no intention of suggesting that a fungus might be an etiologic factor. In 1885, Auspitz introduced the term *granuloma fungoides* because of his belief that the disease represented an inflammatory reaction of the reticuloendothelial system.

Also in 1885, Vidal and Brocq first described the d'emblee form, in which tumors are the initial lesions. Besnier and Hallopeau, in 1892, described the premycotic erythematous stage.

THE NATURAL COURSE OF MYCOSIS FUNGOIDES

Clinically, mycosis fungoides occurs in three stages, the erythematous, the plaque and tumor stage.

The erythematous stage, also known as the premycotic phase, is one of widespread or localized areas of erythema or dry "eczema." The eruption may simulate eczema, psoriasis or parapsoriasis for some time. Poikiloderma-like changes of the skin may occur in the erythematous stage. The erythematous stage may last for months to several years before progressing into the plaque stage. This is characterized by sharply demarcated, slightly elevated lesions. oval or circular in shape and may persist for months to years before progressing into the tumor stage (terminal phase). The tumors usually appear at the sites of the plaques; they may grow slowly or rapidly and many of them eventually ulcerate. Occasionally, tumors may develop without the previous presence of erythematous or plaque lesions (d'emblee type). All stages of the disease may be seen at one time in the same patient. Bullous lesions are rarely present; the bullae arise from normal skin rather than from preexisting plaques.[7]

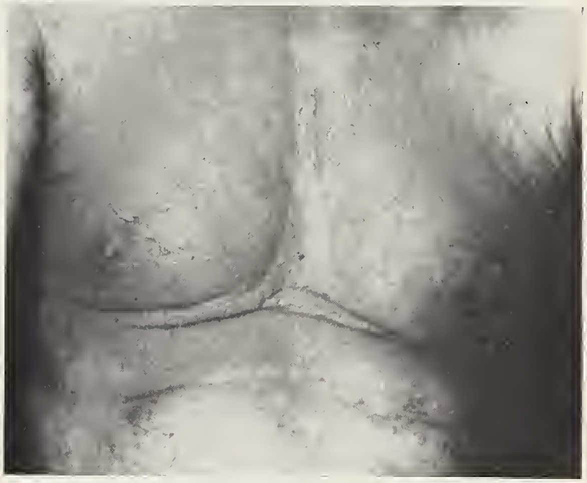

Figure 1.—Erythematous stage of mycosis fungoides. Note erythema and thickening.

Mycosis fungoides is not a transition from psoriasis or parapsoriasis. Although some reports associate psoriasis with the premycotic stage, there are only three proved cases of psoriasis occurring concurrently with myocosis fungoides.[19] In cases in which parapsoriasis is reported to have terminated in mycosis fungoides, the patients actually had a premycotic stage of mycosis fungoides which was dormant for many years before evolving into the plaque and tumor stage. It is unlikely that two different diseases are present in the same patient.[18]

The familial incidence of mycosis fungoides has been noted but is extremely rare.[3] Cawley reported an equal incidence among male and female patients.[3] The disorder occurs less frequently in the Negro than in the Caucasian race.[13,23] The average duration of life after the diagnosis is confirmed is three to six years. Some patients survived for as long as 35 years.

Pruritus is a prominent clinical symptom. It appears early in the erythematous stage and is usually

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Presented before the Section on Dermatology and Syphilology at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

From the Division of Dermatology, Stanford University School of Medicine, San Francisco (Farber and Schneidman); San Salvador, El Salvador, Central America (Llerena G.).

This project was supported by the Herbert Harband Dermatology Fund.

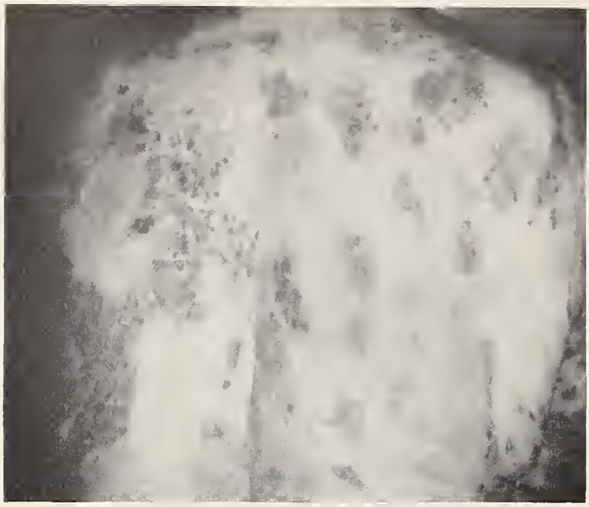

Figure 2.—Plaque stage of mycosis fungoides. Note circumscribed plaques. Similar lesions are present on the chest and extremities.

intense. Rarely the pruritus may appear before the eruption.

The cause of death is intercurrent infection, cachexia or lymphoblastomatous involvement of vital internal organs.

HISTOGENESIS AND PATHOLOGY

Mycosis fungoides is usually placed within the lymphoblastoma group of disorders. This group embraces malignant growths that arise in multiple foci from the lymphoid-reticular system. The mother cell of the lymphoid-reticular system is the lymphoid reticular stem cell found in the lymph nodes, spleen and liver; this may differentiate into either a lymphocyte or a reticulum cell.[17] While the variety of cell types found in the dermal infiltrate includes histiocytes, reticulum cells, lymphocytes, neutrophils, eosinophils, plasma cells and fibroblasts, it is the reticulum cells that may show atypical features. It is likely that in lymphomas of the skin the immature cells arise within the skin, whereas, in nonmalignant dermatoses. cellular infiltrations are hematogenous in origin.

In the early (erythematous) stage the histopathologic features are usually nonspecific, the changes resembling those of chronic dermatitis. After a variable period, there appears an infiltrate limited to the upper portions of the dermis. It is extremely dense and extends to the dermal-epidermal junction. There is a multiplicity of cell types within this infiltrate—histiocytes, reticulum cells, fibroblasts, neutrophils, eosinophils, lymphocytes and plasma cells. The reticulum and histiocytic cells may be atypical in appearance; there may be pyknosis, karyorrhexis, clumping of nuclei (mycosis cells) and mitotic figures. "Abscesses," composed of lymphocytes and histiocytes, occur in the epidermis; this is a corroborative, but not a constant finding. The epidermis shows no diagnostic changes, but constant findings are acanthosis, elongation of the rete ridges and an indistinct dermal-epidermal junction. The giant cells of mycosis fungoides referred to as mycosis cells are brought about by clumping of reticulum cell nuclei

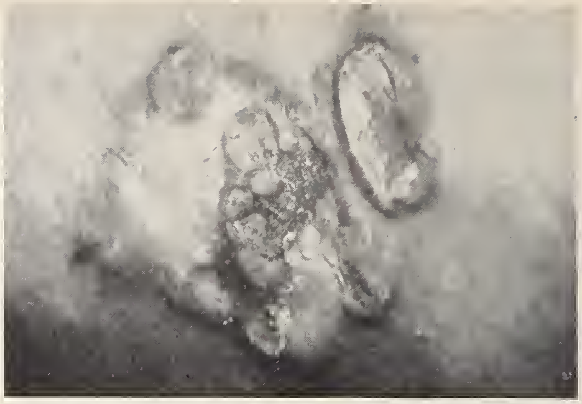

Figure 3.—Tumor stage of mycosis fungoides.

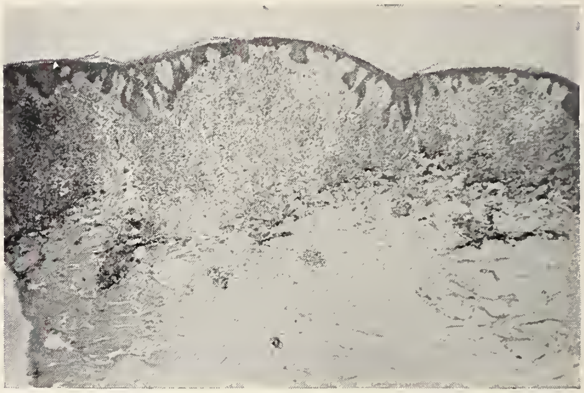

Figure 4.—Section of cutaneous lesion of mycosis fungoides (×30). Note pronounced infiltrate extending throughout entire length of section and involving the upper half of the dermis.

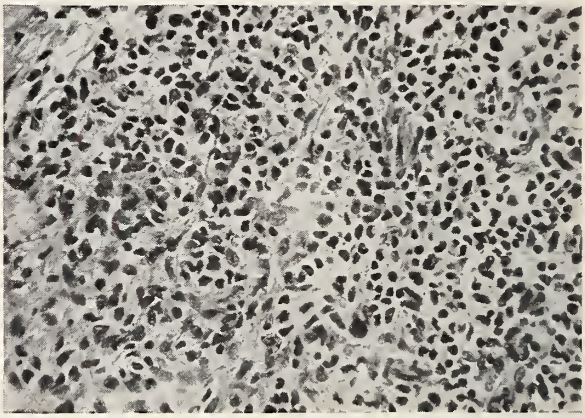

Figure 5.—Section of cutaneous lesion of mycosis fungoides (×400). Infiltrate shows a high percentage of reticuloendothelial cells of varying sizes and shapes.

or endothelial cell nuclei. They must be differentiated from Reed-Sternberg cells, which are mononucleated or multinucleated giant cells with a dark, nuclear ring. a thick, coarse, nuclear pattern, and a large deep-staining nucleolus. In contrast, the nuclei of mycosis fungoides cells are pale, have a fine chromatin pattern and tiny nucleoli. Spontaneous resolution of plaques and tumors occurs when the infiltrate is absorbed; and, if there is no ulceration, resolution may occur without fibrosis. The infiltrate is invasive rather than destructive.

In necropsy reports of cases in which there was visceral involvement, it was noted that histopathologic features were compatible with lymphosarcoma, reticulum cell sarcoma or Hodgkin's disease.

ETIOLOGY

There is no agreement regarding the cause of mycosis fungoides. Neoplastic, infectious and inflammatory concepts have been proposed.

With regard to the concept of neoplastic origin, the histological features are impressive, for they are similar to those of reticulum cell sarcoma, lymphosarcoma or Hodgkin's disease. The involvement of the internal organs and the response to chemotherapeutic agents used in the treatment of lymphomas suggests a neoplastic disorder.[5,6,21,28]

Investigators who believe an infectious process is an etiologic feature point to animal experiments in which inoculation with freshly excised tumors results in development of lesions that are histologically similar to the original pathologic tissue.[24,25]

To support an inflammatory histogenesis it has been pointed out that there is no destruction of tissue, and also that it is difficult to conceive of a neoplasm with so many diverse cell types.[5,6,28]

Involvement of Internal Organs

Mycosis fungoides is primarily a cutaneous disease. However, in the later stages, involvement of the internal organs may occur. The organs involved most frequently are the lymph nodes, spleen and liver. In approximately 20 per cent of cases of mycosis fungoides in which autopsy is done involvement of viscera is observed.[17] Because of the multicentric origin of mycosis fungoides in the skin, it is conceivable that it arises *de novo* in the internal organs rather than as a metastatic phenomenon. There has been one case reported of internal involvement without skin manifestations.[4]

The Bone Marrow and Blood in Mycosis Fungoides

The bone marrow is not involved in mycosis fungoides.[26] Lapiere and deWeirdt studied the bone marrow in eleven cases of mycosis fungoides and found reticuloendothelial reaction consisting of an increase in the proportion of monoblasts, lymphocytes and plasma cells. They concluded that this reaction was not specific for mycosis fungoides. Santoianni reported similar observations in four cases. Tilley and Smith noted no significant bone marrow changes in six cases they studied.[26]

Autopsy reports on cases in which transformation to a malignant lymphoma has occurred have noted involvement of the bone marrow with neoplastic cells.[3] Eosinophilia is observed occasionally in peripheral blood, but it is not diagnostic.

Roentgenology

There are no definite roentgenographic features that might help diagnostically in the absence of skin lesions. Occasionally, pulmonary infiltrations or enlarged hilar nodes are detectable in known cases of mycosis fungoides.[2,3,20]

Mucous Membrane Lesions

Mucous membrane involvement is extremely rare. In the case reported by Cawley[3] many lymphoblasts were noted in microscopic examination of tissue from lesions of the oral mucosa.

THERAPY

Until 1903, therapy was symptomatic and of little benefit. Then x-ray was used for the first time in the treatment of mycosis fungoides, and to date it has proved to be the most efficacious mode of treatment, resulting not only in palliation but in regression of plaques and tumors. Other forms of therapy that bring about palliation or regression of lesions include administration of tartar emetic, para-aminobenzoic acid, nitrogen mustard, adrenocorticotropin hormones, steroids and varieties of beta and gamma ray radiation, such as radium, radioactive phosphorus and high energy electrons.

The main exponent of tartar emetic therapy is Garb,[8,9,10] who advised two to three injections weekly of 5 cc. of 1 per cent solution intravenously for six weeks. The main advocate of para-aminobenzoic acid is Zarafonetis,[29] who recommended the use of 18 to 24 gm. daily for an indefinite period.

Nitrogen mustard may be given intravenously or orally. The intravenous dose is 0.4 mg. per kilogram of body weight. The oral dose is 0.1 mg. per kilogram. The average duration of relief is three to five months.[10,11,14,16,29]

Treatment with high energy electrons has been used within the past several years.[12,27] The high energy apparatus uses force varying from two to three million volts. At two million volts maximum ionization occurs at a depth of 4 mm. and the ionizing energy is completely dissipated at a depth of 10 mm. In this form of therapy, the ionization at the surface is half that at the 4 mm. depth, resulting in a remarkable sparing of the surface epidermis.

DATA ON TWENTY-SIX CASES

Following is data on clinical features, laboratory studies and treatment, gathered in observation of 26 cases of mycosis fungoides.

Age at Onset. The average age at onset was 54 years. The youngest patient was 35 and the oldest 74. Mycosis fungoides appeared most frequently in the fourth and fifth decades of life.

Site of Initial Eruption. The disorder usually appeared on the trunk and extremities. Less frequently, only the trunk or only the extremities were involved. In 14 cases there was generalized eruption at the outset. In eight there was involvement of the extremities only and in four involvement of the trunk only.

Type of Initial Lesions. Twenty of the patients had plaques or patches (erythematous or eczematoid) as the initial lesions. Three had nodules only. Two patients had ulcerated tumors (d'emblee form) as the first symptom. One patient had all types of primary lesions when first examined. One had bullae as well as plaques as the first lesions.

General Physical Observations. Only occasionally and coincidentally were abnormal physical findings (exclusive of the skin) noted upon first examination. Two patients had essential hypertension. Two others were febrile and acutely ill and had generalized enlargement of lymph nodes. One of the acutely ill patients improved promptly following therapy with para-aminobenzoic acid. With the exception of the two cases mentioned, acute illness and incapacitation were seen only in terminal stages of the disease.

Blood Studies. Twenty-one patients had total leukocyte content ranging from 5,000 to 10,000 per cu. mm. of blood and four had more than 10,000. One patient had leukocyte content as high as 100,000 per cu. mm.; these cells were interpreted as reticuloendothelial cells, and in a bone marrow study no abnormality was noted.

Nine patients had banded forms of neutrophils in proportions varying from 5 to 40 per cent of total leukocytes. This occurred in patients with normal leukocyte content, and it is difficult to ascribe this to infection alone, for it occurred consistently in the absence of any visible active infection. Only five patients had eosinophil content above 5 per cent.

The blood cell differential in mycosis fungoides in our series showed an increased number of banded neutrophils and, less regularly, an increased proportion of eosinophils, but was otherwise within normal limits.

Bone Marrow. In nine cases data on examination of bone marrow was available. In seven cases the findings were normal and in two there was hypoplastic marrow due to chemotherapy or x-ray therapy.

X-ray Examination of Chest. X-ray films of the chest were available for study in 17 cases. In 13 cases no abnormalities were seen. In two there was peritracheal and hilar adenopathy, and in two others there were scattered densities in both lung fields. In one patient with pulmonary densities, the densities resolved two weeks after nitrogen mustard was given. The other was given nitrogen mustard ten days before death, and at autopsy pulmonary abscesses were observed but there was no evidence of an infiltrate characteristic of mycosis fungoides or lymphoma.

Duration. The average duration of mycosis fungoides from the time of onset (as determined from the history in each case) to the time of death was 6.7 years. The average duration from the time of diagnosis to the time of death was 3.7 years.

Therapy. All patients in the series received superficial x-ray therapy at some time during the course of the disease. It was invariably effective initially, but with each course the results were less effective.

Nitrogen mustard in eight patients was effective for periods of from one to several months. It was administered both intravenously and orally. The intravenous dose was 0.4 mg. per kilogram of body weight injected into the tubing of an intravenous saline drip. In cases in which improvement occurred, it was noticed within seven days: Pruritus regressed and the tumors and plaques began to involute. Occasionally, a second injection was given six weeks later. The oral dose of nitrogen mustard, 0.1 mg. per kilogram of body weight per day, was given for two months, then was discontinued two months and was resumed until evidence of failure or improvement in the clinical status was apparent. Total dosage in any one case varied between 800 and 1,000 mg. The leukocyte content was watched closely and the drug was discontinued when the number of cells dropped below 3,000 per cu. mm.

Para-aminobenzoic acid was administered to four patients. In two patients the plaques and tumors regressed. The dose used was 18 gm. daily. To minimize side effects due to salt retention, the potassium salt of para-aminobenzoic acid rather than the sodium salt was used.

Antimony potassium tartrate was given intravenously to five patients with no success. One patient was treated with the high-energy electron beam (by Dr. John Fromer at the Lahey Clinic) with remarkable regression of plaques and tumors. After four months, several plaques reappeared. The patient was still under observation at the time of this report.

Adrenocorticotropin hormones and steroids (prednisone and prednisolone) were used in 40 to 80 mg. daily doses in two patients. Some regression of the lesions occurred, but the improvement lasted only two to four weeks.

That so many kinds of therapy are used attests that none is consistently effective. Superficial x-ray is the most valuable of them, but the effects are only temporary and palliative. Treatment with high energy electrons is very effective. Since mycosis fungoides is a fatal disease, it is important that each of the modes of therapy mentioned be considered for the individual patient. Each may be effective in a small proportion of patients for periods varying from three to twelve months.

Postmortem Examination. Autopsy was done in seven cases. Only one of the subjects had lesions limited to the skin and six had involvement of the internal organs varying in degree from scattered focal infiltrates to extensive involvement of the viscera. In two there was extensive involvement of the spleen, liver, kidney, colon and heart; in one the lesions were diagnosed as lymphosarcoma and in the other as reticulum cell sarcoma. The cause of death in these two instances was attributed directly to the lymphomatous process.

The remaining four subjects had scattered focal cellular infiltrates in the lymph nodes, spleen and liver. In two subjects with focal infiltrates the lesions were diagnosed as reticulum cell sarcoma and lymphosarcoma respectively. The remaining two showed polymorphous focal infiltrates.

The cause of death in the seven cases in which autopsy was done was as follows: Infiltration of vital organs, aplastic anemia (from x-ray or chemotherapy), acute heart failure, bacteremia and pneumonia. In two instances death could be attributed directly to the lymphomatous infiltration; in the remaining five it could only be indirectly related to the lymphomatous process.

Bone marrow involvement was not present in any of the seven cases in which autopsy was done. In the case of the patient who had leukemic reticuloendotheliosis with normal bone marrow one year before death, there were no bone marrow abnormalities observed microscopically at autopsy.

COMMENT

From analysis of the natural history of mycosis fungoides, it is evident that this disorder may remain relatively dormant from one to twenty years. For reasons unknown, cutaneous tumors may appear at any time. When this occurs, the life expectancy is from six months to two years. Since this is a fatal disorder early treatment is imperative. One should not wait for tumors to appear before treatment is started. Very often, exposure to sunshine or ultra violet light is extremely effective in suppressing the eczematous and plaque-like phase. Other measures which are recommended early in the course of this disorder are administration of para-aminobenzoic acid and tartar emetic. If at all possible, high energy electron therapy should be administered before tumors appear. Active treatment until satisfactory regression occurs seems to offer a better prognosis for life.

The incidence of malignant visceral lymphomatous disease in patients with mycosis fungoides is difficult to determine. Allen[1] in an analysis of necropsy observations in 21 cases reported visceral involvement in three. Cawley[3] reported visceral involvement in eight of ten cases of mycosis fungoides.

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Intestinal Obstruction Complicating Acute Perforative Appendicitis

W. RUSSELL SMITH, *M.D.*, Los Angeles

• Upon preoperative diagnosis of acute small bowel obstruction, without an obvious cause, acute perforative appendicitis must be considered. Reevaluation of the history and careful reexamination of the physical findings with that diagnosis in mind should be carried out. If appendiceal disease is likely, maximum antibiotic therapy must be begun immediately along with the administration of fluids, electrolytes and other corrective therapy. A mercury-weighted small bowel tube should be inserted and every effort made to advance it into the small bowel before operation. Operative treatment should be restricted to the least possible. A McBurney incision is best unless wider operation is indicated. If an abscess is present, drainage alone may be the procedure of choice. Severely distended and decompensated small bowel must be decompressed, for if not relieved it can be the cause of death in acute perforative appendicitis. Decompression may be accomplished either by small bowel intubation with continuous suction or by enterotomy and aspiration. If not relieved, small bowel distention will be the mechanism responsible for death in a large percentage of patients with acute perforative appendicitis.

ACUTE PERFORATIVE appendicitis may occur with or without significant distention of the small bowel. When present, the distention may be a manifestation of adynamic ileus (inhibition obstruction, paralytic ileus), with or without peritonitis, or it may be present as the result of acute mechanical obstruction caused by the appendiceal lesion. Minimal intestinal distention rarely creates a problem in management, whereas major problems may be presented by severe adynamic ileus or mechanical obstruction secondary to acute perforative appendicitis. Clinically it may be difficult to distinguish between these two conditions; and they may co-exist, or one may follow the other. Furthermore, severe adynamic ileus may become converted into mechanical obstruction if the intestinal distention is allowed to persist. Late in the course of acute perforative appendicitis, intestinal obstruction may dominate the clinical features and obscure completely the underlying appendiceal disease. A surgeon should not be lulled by a diagnosis of "ileus," for both this condition and mechanical obstruction require early, vigorous treatment.

In the five years 1952-56, emergency appendectomy was done in 3,418 cases at the Los Angeles County General Hospital. There were 31 deaths in this series, a mortality rate of less than 1 per cent. In eight of the fatal cases, a preoperative diagnosis of small bowel intestinal obstruction had been made. At operation the small bowel obstruction in all of the eight patients proved to be secondary to complications of acute perforative appendicitis. In five patients, the mechanism of intestinal distention was mechanical obstruction, and in three it was inhibition obstruction (adynamic ileus). Analysis of these eight cases was made in an effort to determine why the primary diagnosis was not made before operation, what effect this had in the death of the patient, and how the management of these cases could have been improved.

CASE REPORTS

CASE 1. A 69-year-old man was admitted to the hospital on a medical service. He was in a state of mental confusion. The history obtained was of loose stools for a week, vomiting for four days and questionable hematemesis.

The body temperature was 96°F. The abdomen was soft and moderately distended, with bilateral lower abdominal tenderness and rebound tenderness. There were no masses palpable and peristalsis was hypoactive. Leukocytes numbered 8,400 per cu. mm. of blood, with 75 per cent polymorphonuclear neutrophils. An x-ray film of the abdomen showed severe small bowel distention with stepladder distribution with some gas in the right colon (Figure 1). A diagnosis of intestinal obstruction was made.

Fluids were given intravenously, without antibiotics, and nasogastric suction was provided. Operation was done seven hours after admission. The small bowel was dilated and dusky throughout. No pulsation was felt in the base of the thickened mesentery. Fibrinous exudate was present throughout the lower abdomen with partial localization in the right lower quadrant. The cecum was adherent to the ileum one foot proximal to the ileocecal valve, and a fecalith was present in the peritoneal cavity. The patient was hypotensive during the operation and because of the critical state the collection of exudate in the right lower quadrant was drained

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Presented before the Section on General Surgery at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

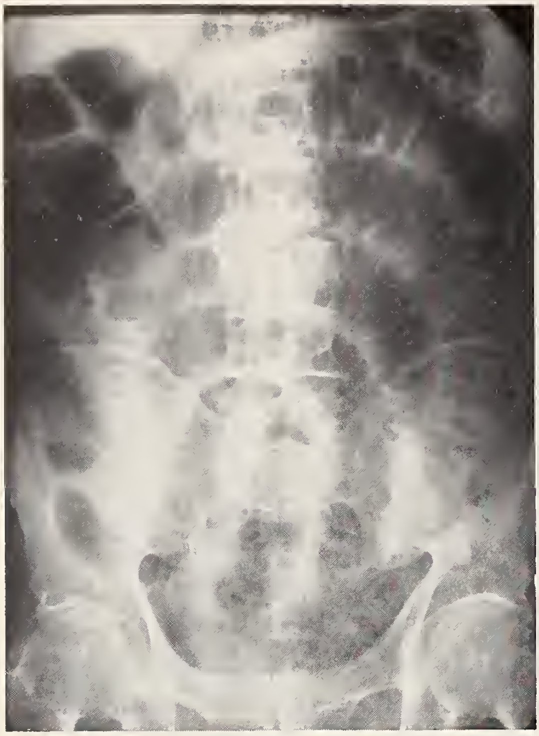

Figure 1 (Case 1).—Severe distention of small bowel with stepladder pattern; some gas in the right colon.

and nothing further was attempted. The patient remained in shock despite intensive therapy and died a few hours later. At autopsy, extensive and diffuse peritonitis was noted.

Case 2. A 69-year-old man entered the hospital with a history of abdominal pain, vomiting and watery diarrhea for three days. He was obese and confused. The skin was cold and the body temperature was 100°F. The blood pressure was 110/90 mm. of mercury and the pulse rate was 140. There was moderate tenderness in the right lower quadrant and peristalsis was diminished. It was felt that the symptoms were owing to either acute hemorrhagic pancreatitis or strangulated small bowel obstruction. The serum amylase content was within normal limits and a plain film of the abdomen showed severely distended small bowel. The patient was given intravenous fluids and nasogastric suction was applied. Four hours after entry, he was operated upon. Generalized peritonitis secondary to an acute perforative appendicitis was observed. The small bowel was greatly dilated with fluid and gas, and the ileum was bound into the right lower quadrant inflammatory process. The appendix was removed and enterotomy with aspiration of the small bowel was done. The patient did poorly despite all supportive measures. He died 18 hours later with a terminal temperature of 106°F. Autopsy showed generalized peritonitis with areas of atelectasis.

Case 3. The patient, a 59-year-old man with left hemiplegia, hypertensive cardiovascular disease and a long history of alcoholism, became anorexic five days before admittance. Three days before entry, nausea, vomiting, cramping mid-abdominal pain had developed. The temperature was 99°F. There was moderate abdominal distention and tenderness over the lower abdomen. Leukocytes numbered 8,000 per cu. mm.—56 per cent polymorphonuclear neutrophils. A lesion of the colon was suspected. No abnormality was seen sigmoidoscopically. X-ray studies with barium enema showed severe distention of the small bowel with a haze in the right lower quadrant (Figure 2). A diagnosis of small bowel intestinal obstruction was made. A right paramedian incision was made six hours after entry and an appendiceal abscess and small bowel obstruction, were observed. The obstruction was released and an appendectomy done. The postoperative course was poor. Hypotension, abdominal distention and hypoactive peristalsis were complicating factors. On the second postoperative day, the patient went into shock. Treated with whole blood and supportive care, he improved somewhat, but then again went into shock and died on the fourth postoperative day. There was no clinical evidence of acute pulmonary or cardiovascular lesions, and the final diagnosis was appendicitis, perforated appendix with peritonitis, and small bowel obstruction with severe ileus.

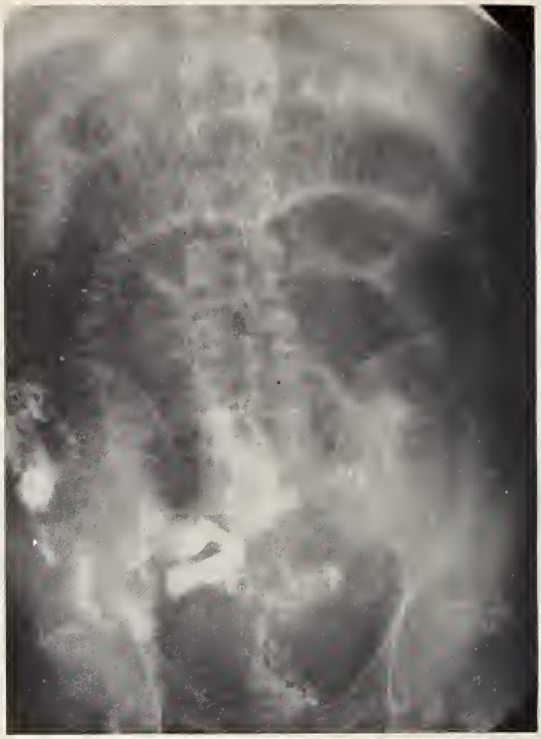

Figure 2 (Case 3).—Postevacuation roentgenograph with barium enema, showing a trace of barium throughout the colon with reflux into the terminal ileum; severely distended remaining small bowel.

Case 4. A 22-year-old man entered the hospital with complaint of abdominal pain, anorexia and vomiting of two days' duration. The temperature was 99.6°F. The abdomen was moderately distended and there was moderate central tenderness and increased peristalsis. Leukocytes numbered 15.250 per cu. mm.—85 per cent polymorphonuclear neutrophils. X-ray studies, including barium enema, showed severe small bowel distention with some gas in the colon and a diffuse mass in the right lower quadrant of the abdomen. At operation an appendiceal abscess with small bowel obstruction was noted. Shock occurred after the operation and continued for the first three postoperative days. The patient had abdominal distention and oliguria. On the fourth day, the distention increased, cramping pain developed and a mass was palpated in the left upper quadrant of the abdomen. Roentgenographically the mass appeared to be small bowel, and at operation a volvulus of the entire small bowel with a short mesenteric attachment and gangrene of two areas were noted. A ten-inch segment and a six-inch segment of gangrenous bowel were resected from the extremes of the small bowel. The oliguria continued and icterus was noted the day after the second operation. Nonprotein nitrogen content gradually rose to over 300 mg. per 100 cc. of blood. The condition of the patient deteriorated and on the twenty-third postoperative day he died. At autopsy perforation of one of the anastomotic seams and abscess formation at the site were observed. Multiple staphylococcal lung abscesses and acute nephrosis also were present.

Case 5. A 76-year-old man entered the hospital with lower abdominal pain and vomiting of four days' duration and diarrhea for two days.

The temperature was 99.4°F. The abdomen was distended and tender with occasional high-pitched peristaltic sounds. A plain film of the abdomen showed severely distended small bowel and some gas in the large bowel (Figure 3). Leukocytes numbered 5,900 per cu. mm.—68 per cent polymorphonuclear neutrophils. A diagnosis of intestinal obstruction was made. At operation the appendix was observed to be perforated and at the site was a localized abscess trapping and obstructing the small intestines with plastic adhesions. The appendix and the abscess were removed and the obstruction released. Because of the severe distention of the small bowel and intralumenal fluid, enterotomy was done and the contents aspirated. Moderate distention continued. The patient pulled the tube from the small bowel several times. By the fourth postoperative day, the abdomen was severely distended despite continuous suction. The patient improved slowly and on the seventh postoperative day peristaltic sounds were heard. Distention had abated somewhat. A soft diet was permitted. Moderate distention continued. Oral alimentation was poor and the patient was sometimes nauseated. Although he was given supportive care he died suddenly on the eleventh postoperative day, the cause of death was not apparent. Autopsy was not done.

Case 6. A man 72 years of age was admitted with a history of abdominal pain and obstipation for six

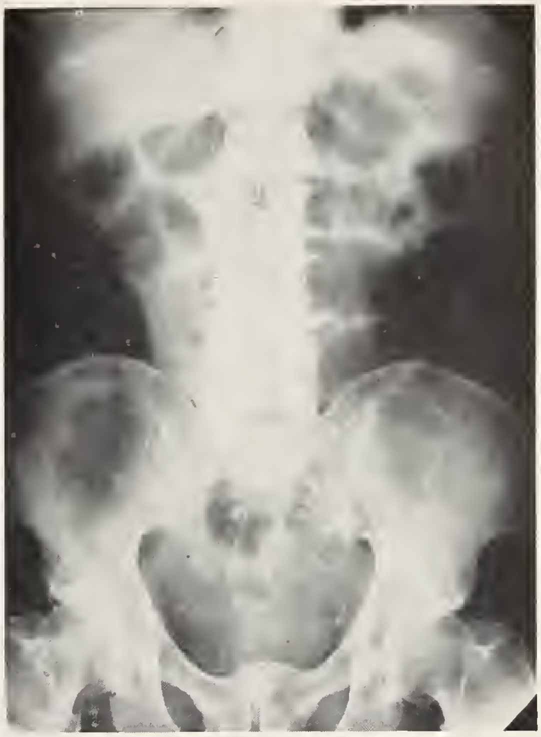

Figure 3 (Case 5).—Severe distention of small bowel with some large bowel gas pattern.

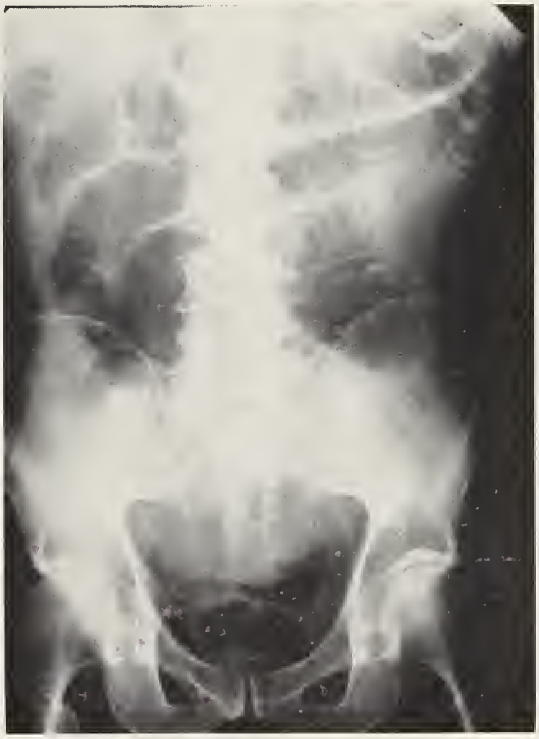

Figure 4 (Case 6).—Severe distention of small bowel with stepladder pattern; a little gas in the rectal ampulla.

days and fecal vomiting for one day. A plain film of the abdomen showed severely dilated small bowel with very little gas in the colon (Figure 4). A diagnosis of small bowel intestinal obstruction was made. Nasogastric suction was applied and fluids were given by vein. Six hours after entry, the patient was operated upon and acute perforative appendicitis, causing a right lower quadrant abscess and generalized peritonitis, was observed. The small bowel was trapped in the abscess, causing complete intestinal obstruction. Appendectomy was done and the obstruction was released. The postoperative progress was slow but the patient continued to improve and the suction was discontinued on the fifth postoperative day. The nonprotein nitrogen content had been 120 mg. per 100 cc. of blood and the serum potassium 5.6 mEq. per 100 cc. at the time of admittance; by the sixth postoperative day the nonprotein nitrogen content was 45 mg. and the serum potassium 4.7 mEq. per 100 cc. The patient died on the seventh postoperative day. The clinical impression was bronchopneumonia, generalized peritonitis with secondary ileus. Autopsy was not done.

CASE 7. The patient was a 73-year-old white woman who entered the hospital with a history of abdominal pain and vomiting for 24 hours. She was extremely obese. Generalized abdominal tenderness and distention were noted. The temperature was 100°F. Leukocytes numbered 12,300 per cu. mm.—88 per cent polymorphonuclear neutrophils. An x-ray film of the abdomen showed a generalized haze with several loops of distended small bowel (Figure 5). A diagnosis of small bowel intestinal obstruction was made but for 24 hours the patient refused to have an operation. She then consented and was operated upon through an exploratory incision. An adynamic ileus was noted and the small intestine was severely distended. The appendix, which was ruptured, was removed. The postoperative course was poor. For two days the body temperature was high. The chemical contents were within or near normal range. The patient was extremely lethargic, without obvious cause. She became stuporous on the eighth postoperative day. Because of excessive collection of bronchial secretions, tracheostomy was done. The condition of the patient steadily deteriorated and she died on the thirteenth postoperative day with sepsis and pulmonary complications. The abdomen was soft and peristalsis was hypoactive.

CASE 8. An 83-year-old senile white woman entered the hospital in a confused mental state with generalized abdominal pain of one week's duration, "black stools" and vomiting. She was under treatment for "heart trouble," and had had gallbladder trouble for years.

The temperature was moderately elevated, there was distention and generalized tenderness of the abdomen. Occasional high-pitched peristaltic sounds were heard. An x-ray film showed severely distended small bowel (Figure 6). A diagnosis of small bowel intestinal obstruction was made. The patient was operated upon through a lower midline incision be-

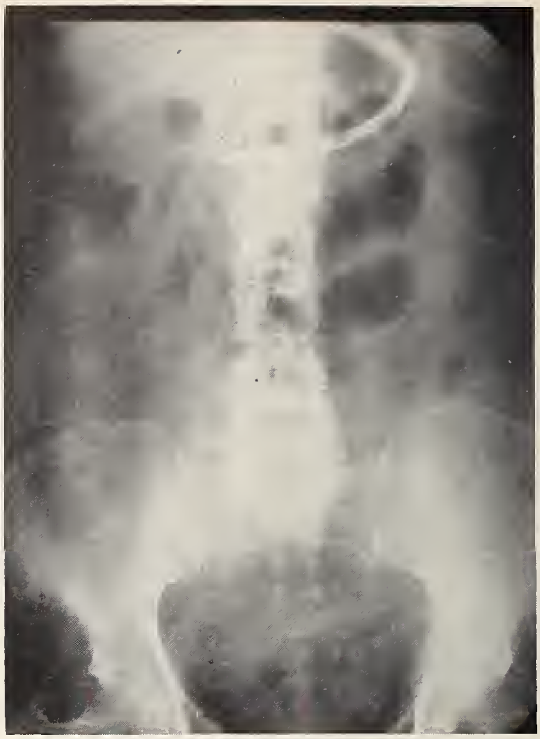

Figure 5 (Case 7).—Generalized haze over abdomen with several loops of distended small bowel; small amount of gas in colon.

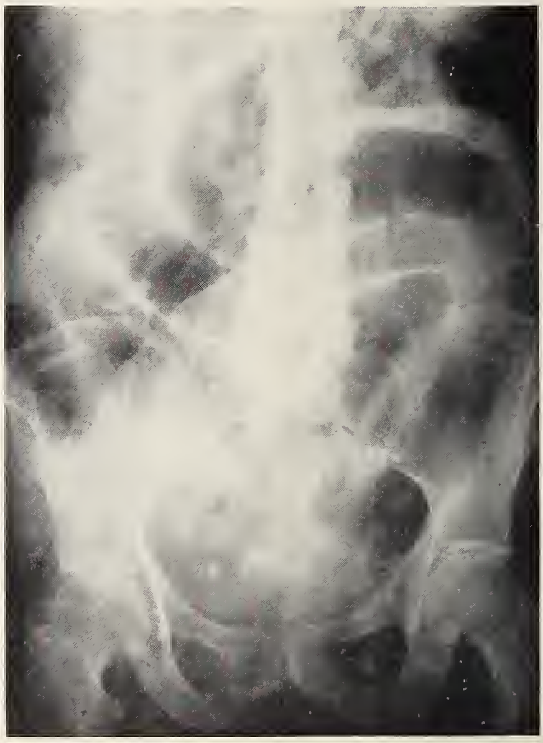

Figure 6 (Case 8).—Severe distention of small bowel without definite colon gas.

cause a femoral hernia was thought to be present. The femoral area was intact, however. A pericecal abscess which had not been palpated in the preoperative examination, extended down into the pelvis to the right of the rectum. The abscess was drained through the right flank. By the fourth postoperative day the patient was eating, was ambulatory and was passing gas rectally. The abdomen was soft and moderately distended. Persistent high-pitched peristaltic sounds were heard. A low grade fever then developed. The patient required digitalization because of heart failure. Bilateral surgical parotitis developed. By the eighteenth postoperative day, there was persistent diarrhea with a soft cul de sac mass. Abdominal distention was slight. Deterioration continued. A right inguinal abscess was drained, with little effect on the condition of the patient, and she died on the thirty-eighth postoperative day of an acute febrile illness complicated by senility, cardiac failure and parotitis.

DISCUSSION

These cases emphasize that when a diagnosis of intestinal obstruction is made in the case of an elderly patient, acute perforative appendicitis should be considered as a possible cause of the obstruction, particularly if previous surgical operation, hernia or other more common causes are lacking. The history should be carefully reevaluated with that diagnosis in mind. Furthermore, if there is likelihood that appendicitis is present, maximum antibiotic therapy should be given preoperatively.

Noble[6] stated that death in acute peritonitis results from the obstructing tangle of bowel and not from the infection. In the pre-antibiotic era, overwhelming acute peritonitis was the most common cause of death.[1,3,7,8] It will be noticed that in two of the eight cases (Cases 1 and 2) reported herein, death resulted from overwhelming peritonitis. Both patients died on the first postoperative day and were little helped by antibiotic therapy and surgical drainage. In the remaining six patients, peritoneal infections were less prominent. Although the exact cause of death was not established in each case, the major role played by the dysfunctioning obstructing tangle of intestine referred to by Noble[6] was clearly demonstrated. The pathological development involved in these cases was small bowel distention, leading to severe loss of fluid and electrolyte loss.

Often the significance of dilatation of small bowel will not be adequately recognized. In advanced peritonitis the bowel becomes decompensated. A superimposed mechanical obstruction is not ushered in with the usual cramps, tinkles and peristaltic rushes. The onset is silent and insidious and, consequently, a diagnosis of adynamic ileus rather than mechanical obstruction may be made. Dilated and decompensated, the small bowel invites fluids and electrolytes to pour quietly into its lumen. A sharp drop in urinary output occurs concomitant with the loss into the third compartment. Compartmental fluid shift was conspicuous in this series and it was the chief contributing factor in the deaths of at least four patients (Cases 3, 4, 5 and 6). In Case 4, shock following the first operation, presumably, brought about the lower nephron nephrosis that caused the patient to die of uremia on the twenty-third day. In Case 3, hypotension and shock developed on the second postoperative day, and again on the fourth postoperative day. Although the postoperative state was complicated by cardiovascular disease, the main factor leading to death was hypovolemia secondary to the peritonitis and intestinal obstruction. In Case 6 a severe illness was present and a mechanical obstruction was relieved at operation. This was followed by severe adynamic ileus that persisted throughout the postoperative period until death on the seventh day. The patient in Case 5 died on the eleventh postoperative day. Throughout the entire period after operation he had moderate to severe abdominal distention. In this patient, as in the others mentioned, the third compartment fluid loss into the dysfunctioning small bowel was considered the main cause of death.

Not only is it necessary to replace the lost fluid and electrolytes, but the underlying cause of the loss must be dealt with. When the small bowel distention persists, a vicious cycle is established. Efforts toward decompression of the small bowel should be instituted early.[2,4,5] To do this, a mercury-weighted gastrointestinal tube is inserted. Positioning of the tube at the pylorus is facilitated by fluoroscopic visualization. If peristalsis is active, advancement of this tube into the distended small bowel may occur while preoperative fluid correction is being carried out. If peristalsis is sluggish or absent, no advancement of the tube can be expected. During the operative procedure, however, it is frequently possible to advance it manually into the distal small bowel. But if that is not possible, enterotomy with aspiration of the contents of the small bowel will be required if the degree of intestinal distention is extreme. In less severe cases, release of the stricture may be all that is required. Relief of the distention of the small bowel is essential whether it be accomplished by nasogastrointestinal intubation with aspiration, by enterotomy with aspiration, or by freeing the obstructing stricture so that the small bowel contents can pass into the colon. Gastrointestinal suction both before and after operation may help greatly toward relieving the intestinal distention and resultant intestinal dysfunction. In Case 4 the second surgical procedure might have been averted had the small bowel been intubated and the distention relieved. In Case 3, decompression of the small bowel would have lessened the fluid and electrolyte imbalance and the necessary replacement could have been more accurate. In Case 6, in which distention continued throughout the entire postoperative course, effective suction might have been life-saving. In Case 5, also, there was unrelenting distention, death occurring on the eleventh postoperative day.

Since even under optimal conditions effective nasogastrointestinal suction is difficult to obtain, it would seem mandatory to place the tube before operation if a diagnosis of intestinal obstruction is made. With generalized peritonitis, peristalsis lacking and the abdomen distended, it is almost impossible to intubate the small bowel effectively.

The operative procedure must be dictated by conditions. A McBurney incision is generally best for an appendectomy or for an appendiceal abscess in which drainage only is indicated and the drainage is expected to relieve the intestinal obstruction. Medial extension of this incision may afford adequate exposure of the area and access to the small bowel, should it be necessary.

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Multiple Myeloma

A Review of 26 Cases

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• Multiple myeloma is a rare, malignant disease of bone marrow which affects principally the vertebrae, ribs, pelvis and skull but may involve any part of the skeleton. Severe demineralization and destructive lesions of bones, producing severe pain and debility, are distinctive features. The disease is further distinguished by abnormalities of blood proteins and in some cases by the excretion in the urine of Bence-Jones protein, which seldom, if ever, is found in association with any other disease.

X-ray examination is frequently helpful. In 22 of 24 cases (of a series of 26 cases) in which films were available, definite abnormalities were noted. Spontaneous fractures, particularly of vertebrae, are common.

The diagnosis of the disease rests on the identification of the myeloma cell. This is best accomplished by aspiration of bone marrow. In several of the 26 cases in the series diagnosis was made by a neurosurgeon at the time of operation to relieve pressure on the spinal cord. The myeloma cell has a very characteristic appearance.

In the present series the average duration of life after the onset of symptoms was only nine months. One patient, however, survived for at least ten years.

On the 30th of October, 1845, Mr. M., "a highly respectable tradesman," placed himself in the care of Dr. William MacIntyre, who subsequently reported the case in the *Transactions of the Medico-Chirurgical Society* in 1850.[22] When first seen, the patient was confined to home by "excruciating pains of the chest, back and loins, from which he had been suffering more or less for upwards of twelve months." He was treated with bloodletting "to the amount of a pound" by the application of leeches, cups and blisters, and by the administration of such tonics as steel and quinine and tincture of aconite. Despite these and a host of other medications, pain, weakness and emaciation progressed, and on the first day of January. 1848, he "died exhausted in the full possession of his mental faculties and evincing, in the supreme hour of suffering, the same admirable fortitude and patient endurance which he had displayed throughout the whole course of his illness."

In all likelihood, this case would have passed into obscurity—indeed, probably never would have been reported—were it not for a urinalysis.

It was the custom one hundred years ago for physicians to do laboratory tests themselves. Dr. MacIntyre thus recorded, in part, his observations of the urine:

> ". . . Treated with heat to ebullition but not under that. it was found to abound in *animal matter*, which, when isolated in this way, exhibited all the characters of albumin. With nitric acid, however, this urine displayed abnormalities of a remarkable kind. On the addition of the acid, no immediate precipitation took place; on the contrary, the urine previously cloudy or turbid, became instantly clear and retained its transparency for an hour or an hour and a half, when it was found to be formed into a firm yellow mass . . . which underwent complete solution on the application of heat, but again consolidated on cooling."

MacIntyre was intrigued by these findings and he conducted experiments in an attempt to determine the precise nature of the substance resulting from the action of nitric acid which he referred to as "animal matter." Furthermore, a specimen of the urine was sent to a distinguished physician and chemist of the day, Sir Henry Bence-Jones,[7] who reported his findings to the Royal Society in April, 1847. History seems clearly to indicate that MacIntyre first discovered this peculiar "animal matter," but it was Bence-Jones who first published a description of it. For this reason it has ever since been known as Bence-Jones protein.

Dalrymple[9] performed a microscopic examination of sections of a rib and two lumbar vertebrae of MacIntyre's patient; and he not only described but made a sketch of what he saw. He noted "certain nucleolated nucleated cells" in sections of the ribs —but one would be hard pressed from Dalrymple's original drawing to identify these as myeloma cells.

Rustisky[25] (1873) generally is credited with being the first to describe this disorder under the name "multiple myelom." Otto Kahler[17] in 1889 differentiated it from osteomalacia, and noted the occurrence of bone pain and fragility, palpable bony enlargements or "tumors," the appearance of a distinc-

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Presented before the Section on Internal Medicine at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

tive kind of proteinuria first described by Bence-Jones, and the predilection to involve bones of the trunk. In 1928 Geschickter and Copeland[11] carefully reviewed every published case of myeloma in the world's literature up to that time—a total of 412—and added reports of 13 cases observed at the Johns Hopkins Hospital. In recent years several excellent reviews on this subject have been published.[1,2,4,19] A most extensive treatise on multiple myeloma is an admirable monograph by Snapper and his colleagues[27] (1953), based on 97 personally observed cases.

METHODS AND MATERIALS

Twenty-six cases of multiple myeloma observed at the California Hospital, Los Angeles, in the period 1942-56, inclusive, are the basis of this review. Of the 26 cases, 12 were diagnosed between 1942 and 1952, eight between 1952 and 1955, and six in 1956. It is likely that the increased incidence in recent years reflects greater awareness and improved diagnostic methods rather than an actual increase in the frequency of the disease.

Sex and Age of Patients. Thirteen of the patients were males, 13 females. (Although not of great moment, it should be noted that in most other studies 65 to 85 per cent of the patients were males.) The average age of all patients was 60 years; the average age of males was 58 years, of females 62 years. Twenty-one of the 26 patients were 50 years of age or older. Four patients were in the fifth decade of life, five in the sixth, twelve in the seventh and three in the eighth decade. One patient was 33 and one was 80 years of age.

Methods of Diagnosis. Diagnosis was established by bone marrow aspiration in nine cases, and by surgical biopsy in nine, by necropsy study in seven cases and on the basis of characteristic roentgenographic and biochemical data in one case. Upon careful review of the seven cases in which necropsy was done, the conclusion was reached that in five there was sufficient data either to suggest or establish a correct diagnosis ante mortem.

CLINICAL FEATURES

The incidence of various clinical features is shown in Table 1. Pain, by far the most common and outstanding symptom, occurred in 24 of 26 cases. In 16 cases it began slowly and increased to severity usually described as "terrific," "excruciating" or "agonizing." In several patients, onset of pain was abrupt, usually coinciding with the occurrence of a pathologic fracture. It was usually aggravated by coughing, sneezing, straining or any motion of the torso or extremities. Patients frequently discovered that if they could remain motionless they would have much less discomfort. Several came to dread the approach of a nurse or physician to the bedside, for fear that they would be moved or disturbed in any way and their pain thereby increased. As Snapper[27] graphically described the course of the illness, "The patient may become, in the last stages of the disease, a pain-wracked invalid, completely bedridden, forced to lie for unending hours in an unchanging position, requiring opiates around the clock."

TABLE 1.—*Incidence of Various Clinical Features in 26 Cases of Multiple Myeloma*

	Number	Per Cent
Pain	24	92
Pulmonary symptoms and signs	16	61
Superficial tenderness	14	54
Fever	13	50
Hemorrhagic manifestations	11	42
Gastrointestinal symptoms	10	38
Loss of weight	10	38
Palpable tumor	8	30
Neurological signs	6	23
Palpable liver	4	15
Palpable spleen	2	7

Pain in multiple myeloma is generally believed due to osteolytic lesions occurring in bones subject to stress or motion. That the lesions *per se* are not painful is suggested by the fact that patients with multiple punched-out areas in the skull do not complain of pain. Only two of the patients in the present series had the cyclic pattern of exacerbations and remissions of pain described by Geschickter and Copeland.[11] Rather, the pain seemed to increase with the duration of the disease. In common with Bayrd and Heck,[4] of Snapper,[27] and Carson and colleagues,[8] we found pain in the back to be most common; it occurred in 20 of the 24 cases in which pain was a symptom. It was located in the lumbar region in 11 cases, in the thoracic area in six cases, in both thoracic and lumbar areas in two cases, and in the cervical area in one.

Sixteen patients had symptoms or signs of pulmonary disease. In order of frequency, these were pleurisy or pain of pleuritic type, bronchitis and bronchopneumonia. Such symptoms are not surprising inasmuch as patients with multiple myeloma are frequently debilitated and are confined to bed because of pain and paralysis.

Pronounced superficial tenderness was noted most frequently over the lumbar spine or ribs, but in several cases was over hip or shoulder joints. Usually it occurred over the sites of osteolytic lesions or pathologic fractures.

Thirteen of 26 patients (50 per cent) had fever during their hospital stay. Fever, which occurred in 13 patients during the time they were in hospital was always low-grade and never a striking or distinctive feature. In about two-thirds of the cases it was intermittent, and in one-third, remittent in type.

As to hemorrhagic manifestations, Snapper[27] and Adams and associates[1] reported abnormal bleeding in 35 per cent and 39 per cent of their cases, respectively. In the present series, epistaxis was the most common, occurring in about half the cases, followed by purpura and hemoptysis. Studies on blood coagulation were so few that even conjecture respecting the nature of the clotting defect is not permissible. However, according to Wintrobe,[29] the defect has never been satisfactorily explained. Several observers have expressed belief it may be related to hyperglobulinemia, which is a common feature of the disease.[19,27]

Symptoms referable to the gastrointestinal tract, such as constipation, anorexia, nausea and vomiting, were in no way unlike those which might be encountered in any debilitating process and were of no assistance in diagnosis. In four of the ten cases in which loss of weight occurred, the loss was considered "marked."

Palpable tumors due to large focal collections of myeloma cells (plasmacytomas) were located in the ribs in three cases, in cervical and axillary nodes in two cases and in the skull, thoracic spine and ilium in one case each.

Of the six patients with definite neurological abnormalities, one had paraplegia and paralysis of the right side of the face and tongue. (At autopsy in this case it was noted that the orbital plate of the left sphenoid bone was infiltrated and largely replaced by tumor tissue.) One patient had paralysis of the right arm and leg and of the left arm and one had weakness of both legs. Three had complete paraplegia, and in all three this was due to a compression of the cord by a myelomatous involvement of vertebrae. Diagnosis was established in these three cases by examination of tissue removed at the time of laminectomy done to decompress the spinal cord. Among the noninflammatory lesions of the spine producing cord compression, only metastatic carcinoma is more common than myeloma.[16,26]

LABORATORY DATA

Laboratory data on the present series are given in Table 2. A rapid erythrocyte sedimentation rate is characteristic of multiple myeloma; indeed, it is probably the most common abnormality noted in laboratory tests. It was present in 97 per cent of the patients in the series reported by Bayrd and Heck[4] and in 89 per cent of the series Snapper[27] reported. The test was performed on only seven patients in the present series; six had an accelerated rate. The fastest sedimentation rate was 76 mm. in one hour (Westergren); the average was 54 mm. in one hour. Rates as high as 176 mm. in an hour have been reported.[4] Acceleration of the sedimentation rate is due to the presence of increased plasma globulin or fibrinogen or both. In this study serum globulin determinations were made in four cases in which the sedimentation rate was accelerated; in all four, serum globulin was increased.

TABLE 2.—*Analysis of Laboratory Data—Multiple Myeloma*

No. Cases with Data Available		No. of Patients	Per Cent
7	Increased sedimentation rate	6	86
12	Hyperglobulinemia	8	67
22	Anemia	11	50
10	Uremia (nonprotein nitrogen above 40 mg. per cent)	5	50
26	Rouleaux formation	10	38
6	Thrombocytopenia (below 100,000 cu. mm.)	2	33
9	Serum calcium abnormalities	3	33
6	Serum phosphate abnormalities	2	33
26	Leukopenia (WBC below 5,000 cu. mm.)	8	31
25	Plasma cells in peripheral blood	5	20
16	Bence-Jones proteinuria	3	19

Hyperglobulinemia was present in eight of twelve cases in this study. This corresponds closely to that reported by Adams and co-workers[1] (67 per cent), by Bayrd and Heck[4] (73 per cent) and by Carson and co-workers[8] (72 per cent). When present, it is an important diagnostic finding. Although hyperglobulinemia may occur in a variety of diseases, its coexistence with osteolytic lesions substantially narrows the field of diagnostic possibilities. Furthermore, globulin fractions in multiple myeloma as determined by fractionation and electrophoretic studies present certain features not seen in other disease states associated with hyperglobulinemia.[1,27] We would like to emphasize what other observers have pointed out, that hyperglobulinemia causes a variety of alterations in hematologic tests. Not only does it produce an increase in sedimentation rate but is also responsible for excess rouleaux formation which makes it difficult and at times impossible to obtain a count of erythrocytes. Furthermore, it imparts a rather distinct bluish color to blood smears stained with Wright's solution. It may also cause autohemagglutination, making cross-matching of blood at times extremely difficult. Abnormalities of serum proteins in multiple myeloma have been extensively studied by both chemical and electrophoretic methods. A discussion of this is beyond the scope of this review. The studies of Adams and colleagues[1] and of Waldenström[28] are recommended.

Anemia is common in multiple myeloma. Eleven of the 22 patients on whom hemoglobin data was available had hemoglobin content of less than 11.0 gm. per 100 cc. of blood. Twelve had erythrocyte content of less than 4.000.000 per cubic mm., and five had less than 3,000,000 per cubic mm. There is nothing in the cell count which specifically suggests myeloma, but any unexplained anemia should dictate bone marrow study.

Uremia (nonprotein nitrogen content above 40 mg. per 100 cc. of serum) was present in five of ten patients on whom this data was available. Fifteen of the 26 patients in the entire series had some evidence of renal dysfunction as manifest by azotemia, albuminuria (2-plus or more), cylindruria and/or hematuria. Bell[5,6] expressed the opinion that renal impairment in this disease is due to tubular obstruction caused by deposition of Bence-Jones protein. However, renal function studies on patients with multiple myeloma suggested that impairment of glomerular filtration may also be an important factor.[27] Because of renal abnormalities, patients with multiple myeloma are often first believed to have nephritis. A point which aids in distinguishing multiple myeloma from Bright's disease is that the renal dysfunction associated with multiple myeloma does not produce hypertension. In the series Bell[5] reported, only 26 per cent of patients were hypertensive and in the present study only 20 per cent—an incidence probably no higher than the incidence of hypertension among a random sampling of population of the same age.

Excessive rouleaux formation is another distinctive feature of this disease. Adams and co-workers[1] noted this phenomenon in 59 per cent, and Bayrd and Heck[4] in 60 per cent of the cases in their series. It occurred in 38 per cent (10 of 26 cases) in the present study. In some cases, laboratory technicians, noting excessive rouleaux formation on the initial blood smear at the time of admittance of the patient to hospital, were first to suggest the proper diagnosis. Rouleaux formation was first described in 1777,[15] but it was not until 1932 that Reimann[24] pointed out its occurrence in multiple myeloma.

Leukopenia (leukocytes below 5,000,000 per cu. mm.) occurred in eight of the 26 cases (31 per cent) in this series. Snapper[27] noted it in 40 per cent of patients, and Bayrd and Heck[4] in 33 per cent. The differential of cells, in general, was not unusual or distinctive. However, in a few cases a shift to the left was noted. Thrombocytopenia is rather uncommon in this disease. In this study it was noted in only two patients, both in terminal stage of disease.

Rapid skeletal demineralization may occur in this disease, with consequent hypercalcemia. However, the reports in the literature vary considerably as to the incidence of this condition, ranging from 20 per cent to 55 per cent.[1,4,8,13] In our studies, serum calcium determinations were made in nine patients. The values were normal in six cases, increased in two and decreased in one. Serum phosphate determinations were made in six patients; the values were normal in four, and elevated in two. No values below normal were obtained, a point of some assistance in the differential diagnosis from hyperparathyroidism.

Plasma cells were observed in smears of peripheral blood in five of 25 cases (20 per cent). The average proportion of plasma cells was 10 per cent of the nucleated cells; in one patient, 56 per cent were plasma cells. Snapper[27] and Bayrd and Heck[4] reported, respectively, a 22 per cent and a 10 per cent incidence of this phenomenon.

Bence-Jones proteinuria was noted in only three of sixteen cases, or 19 per cent of the series. This incidence was lower than any reported in the available literature. It was reported in 45 per cent of the cases studied by Carson and colleagues,[8] in 49 per cent of Snapper's cases,[27] and in 56 per cent of the Mayo Clinic series.[4] We have no ready explanation for this pronounced disparity in this regard between our series and others, except to point out that in most cases only one test was done. Perhaps if it had been performed more often the observed incidence would have been higher. The object lesson to be drawn from this is that while the presence of Bence-Jones proteinuria is almost pathognomonic of the disease, failure to find it means little.

ROENTGEN ABNORMALITIES

X-ray studies of some portion of the skeleton were obtained in 24 cases; in 14 cases films were available for review. Although there is no roentgen picture which will permit unquestioned diagnosis of multiple myeloma, x-ray studies may nevertheless be quite helpful.[10,14]

In several cases in this series, information so obtained was the first clue toward a correct diagnosis. In 22 of 24 cases there were some abnormalities which to varying degrees were suggestive of multiple myeloma.

Generalized osteoporosis is probably the most common roentgenographic change. It has been repeatedly emphasized that this may be the only abnormality observed in x-ray films.[4,10] In our experience, however, it never occurred alone but was always accompanied either by focal areas of destruction or by pathologic fractures. Osteoporosis alone may not be of much diagnostic help, for many patients with multiple myeloma are of an age at which this is a normal finding. However, if it is extreme and widespread and is not confined merely to the vertebral column and the pelvis, the possibility of multiple myeloma should be considered.[27] Multiple focal areas of rarefaction of the skeleton without accompanying osteoblastic reaction are strongly suggestive of multiple myeloma, although metastatic carcinoma, reticulum cell sarcoma and hyperpara-

TABLE 3.—*Roentgenologic Abnormalities in Bones in Multiple Myeloma*

TYPES

OSTEOPOROSIS
PATHOLOGIC FRACTURES
"PUNCHED-OUT" LESIONS

DISTRIBUTION OF ABNORMALITIES

"PUNCHED-OUT" LESIONS	PATHOLOGIC FRACTURES
Skull Pelvis	Thoracic vertebrae Lumbar vertebrae Ribs
Lumbar vertebrae	Cervical vertebrae
Thoracic vertebrae	Extremities
Ribs	
Cervical vertebrae	

thyroidism may produce a very similar picture. The term "punched-out" has long been associated with this x-ray appearance but probably should be discarded.[14] Not infrequently the surrounding bone is so severely decalcified that there is little contrast between it and the osseous defect. Rather than having a "punched-out" appearance the lesions resemble moth-eaten areas in a porous fabric or impart to the bone an irregular honey-combed appearance. In this series osteolytic lesions were found in the skull and pelvis with about equal frequency. Next most commonly affected were vertebrae and ribs (Table 3). Sixteen patients upon whom x-ray studies were done had a total of 23 pathologic fractures. Snapper[27] found one or more fractures in 62 per cent of the cases he reported upon. Lumbar vertebrae, thoracic vertebrae and ribs were most commonly involved and were affected with about equal frequency. Next in order were cervical vertebrae and extremities.

PATHOLOGICAL FINDINGS

The gross pathological changes in multiple myeloma, particularly with regard to the bones, may be so varied that a single composite description is impossible. Lichtenstein[20] described the various conditions in detail. It is interesting to note, however, that in the original report of this disease MacIntyre[22] gave a very lucid description of the necropsy observations in the case of Mr. M., which has proved to be a common pathological picture. He wrote in part:

> ". . . All the ribs throughout their length were soft and brittle, so that they could easily be cut by the knife and readily broken at any point by the exertion of a very moderate force. They have evidently lost much in size and weight as well as in consistency and tenacity; their outer casement or laminated portion was very thin, loose and fragile, yielding or cracking when pressed between the fingers and thumb: their interior was charged with a soft, gelatiniform substance of a blood-red color and an unctious feel. . . . The upper three divisions of the columna (spine) . . . all presented the same characters of softness and brittleness, but the dorsal and lumbar had evidently suffered most . . . their bodies scarcely equalling those of the cervical in thickness . . ."

The "soft gelatiniform substance" which, as MacIntyre observed, filled the marrow cavity was myeloma. Microscopically it is composed of aggregates or sheets of mononuclear cells with little intercellular supporting material. These cells usually are decidedly uniform in size, shape and staining properties, although some pleomorphism is occasionally seen. Definitive diagnosis of multiple myeloma depends upon identification of this cell. It is usually round or oval and from 9 to 11 microns in diameter, although immature cells may be as much as 20 to 40 microns in diameter.[20,27,29] A distinctive characteristic is an eccentrically placed nucleus containing one to three nucleoli. The nucleus is usually hyperchromatic; nuclear chromatin is frequently arranged in irregular coarse clumps. There may be a clear zone or halo surrounding the nucleus. The cytoplasm is usually light blue when stained with Wright's stain, or is eosinophilic with hematoxylin and eosin. It may contain vacuoles or azurophilic inclusions.

There has been some conjecture relative to the origin of the myeloma cell. Bayrd and Heck[4] expressed belief that it is derived from the reticulum cell. Myeloma may involve any bone but it has a predilection for bones with abundant red marrow, such as the sternum, ribs, vertebra, skull and long bones. Extraskeletal involvement with myeloma is not common and usually occurs concomitantly with osseous lesions. However, in one case in the present series in which necropsy was done, there was extensive infiltration of the lungs, pleura, epicardium, kidney, gallbladder and lymph nodes with myeloma cells but the skeleton was not involved.

Amyloidosis has been reported in about 10 per cent of the cases of multiple myeloma.[4,8,19] In the present study it was found in one of 13 cases in which autopsy was done. In that case there were amyloid deposits in the heart, blood vessels, skin, tongue and bone marrow. This distribution, rather characteristic of amyloidosis in multiple myeloma, is similar to that found in primary amyloidosis.

Renal histologic changes in multiple myeloma, first noted by Löhlein,[21] have been described many times. Some observers feel that they are almost pathonomonic.[5,20,23] The characteristic lesion is one of tubular obstruction by plugs of Bence-Jones protein. These casts may be wide, laminated and partially surrounded by giant cells or polymorphonuclear leukocytes. Hyaline droplets, granules or vacuoles may be noted in tubular cells. Bell[5] noted casts in 19 of 40 cases and felt that in 12 they were clearly the cause of renal insufficiency. In our study, casts were observed in renal tubules in six of thirteen cases in which necropsy was done. Only in two, however, were large numbers of tubules so involved. In both the blood nonprotein nitrogen was normal. The kidneys of the patient with the highest nonprotein nitrogen content in the series (212 mg. per 100 cc.) had vacuolar changes in tubule cells, but tubular lumina contained only small amounts of amorphous eosinophilic material.

ANALYSIS OF SURVIVAL

Multiple myeloma is an invariably fatal disease. Nineteen patients in this study are dead (Table 4). The average duration of life in 18 patients after onset of symptoms was only nine months. Duration of the illness before diagnosis was established was 5.5 months; the average span from diagnosis to death, 3.5 months. Adding to this group one case in which the patient survived ten years increases the average survival time to 14 months. In three large series the average duration of life from onset to death was 19, 20 and 21 months.[4,27,19] The rather pronounced difference between the present series and these reported survival times is, perhaps, a reflection of the difference in types of hospitals from which the data were collected. Our material, drawn from a private hospital serving a local area, is perhaps more likely to contain a higher proportion of cases in which the patient survived a short time. The other series, all collected in medical centers, perhaps contained a higher proportion of long-surviving patients. Almost 60 per cent of the deaths in our series occurred in less than six months; and almost 90 per cent occurred within eighteen months. As previously mentioned, one patient survived at least ten years. Although this is decidedly uncommon, there are scattered reports in the literature of a few patients surviving from nine to sixteen years.[3,18]

DIFFERENTIAL DIAGNOSIS

Recognition of any rare disease requires that one know enough about it to distinguish it from the more common diseases that it superficially or closely resembles. In the present series of 26 cases, 11 different diagnoses were considered at the time of admittance of the patient to the hospital. Only in five cases was the diagnosis at admittance correct and in three of these it had been established by previous study elsewhere. Table 5, based in part on the ten incorrect diagnoses, presents the conditions commonly considered in the differential diagnosis of multiple myeloma.

Pathologic fracture, particularly in a middle-aged or elderly person, should lead to suspicion of multiple myeloma. Roentgenographically, senile or postmenopausal osteoporosis may closely resemble that seen in multiple myeloma. Compression vertebral fractures may occur in both. It is our impression, however, that the demineralization associated with multiple myeloma is likely to be more extreme and more painful than is this process when associated with senility or the postmenopausal state. Snapper[27] pointed out that the skeletal demineralization in postmenopausal osteoporosis is usually limited to the spine and pelvis, whereas in most cases of myeloma it is universal.

TABLE 4.—*Analysis of Survival (26 Patients)*

Dead	19
Living	4
Unknown	2
Moribund on admission; time of onset not known	1

Length of Survival (19 Patients)

Onset of Symptoms to Death	Number	Per Cent
0 to 5 months	11	58
6 to 11 months	2	11
12 to 17 months	4	21
18 to 36 months	1	5
10 years	1	5

Average Duration of Survival (18 Patients)

Before Diagnosis	Diagnosis to Death	Onset to Death
5.5 months	3.5 months	9 months

TABLE 5.—*Conditions with Similar Symptoms in Differential Diagnosis of Multiple Myeloma*

DISEASES

- Pathologic fractures
- Senile or postmenopausal osteoporosis
- Metastatic carcinoma
- Arthritis
- Chronic nephritis
- Spinal cord tumor
- Hyperparathyroidism

LABORATORY ABNORMALITIES

- Hyperglobulinemia
  - Rouleaux formation
  - Very high sedimentation rate
- Unexplained anemia

Osteolytic metastasis from carcinoma may very closely resemble the skeletal lesions in myeloma. The discovery of osteolytic metastasis should prompt immediate search for a primary lesion in those organs which frequently give rise to metastasis to bone, mainly kidney, thyroid, breast and prostate. It should be noted, however, that the lesions metastatic from carcinoma of the prostate are usually osteoblastic and pose no diagnostic difficulty. Also in the presence of osteolytic metastasis, the serum alkaline phosphatase content may be elevated; in multiple myeloma it is usually normal.

Because of the frequency of pain in the back in multiple myeloma, some patients are first believed to have spinal arthritis. As a matter of fact they may, for many are in an age group wherein degenerative changes of the spine are almost universal. In our experience the pain associated with degenerative arthritis of the spine is usually of mild or moderate degree. Very intense or excruciating pain in a patient thought to have "arthritis" should make one skeptical of the diagnosis.

Because patients with multiple myeloma may have azotemia, albuminuria or anemia, they are frequently first believed to have chronic nephritis. However, as mentioned before, the "nephritis" associated with multiple myeloma is nonhypertensive. Bence-Jones proteinuria should be sought in all cases in which there is albuminuria or azotemia without hypertension.

Clinical features suggestive of a spinal cord tumor, notably weakness or paralysis of the lower extremities occurring in an adult, should make one wary of multiple myeloma. As mentioned before, multiple myeloma is second only to metastatic carcinoma among the noninflammatory lesions of the spine producing cord compression.

Hyperparathyroidism with skeletal involvement may closely resemble multiple myeloma. One patient in our series who was felt to have hyperparathyroidism had neck and mediastinal exploration for a parathyroid adenoma; none was found, but a marrow specimen removed by the surgeon from the sternum was histologically typical of multiple myeloma. It has been said that one can differentiate the two diseases by differences in the roentgen appearance alone.[27] However, since both of these conditions are quite rare, only in exceptional instances is a radiologist likely to have sufficient experience to be able to make this differentiation with confidence and accuracy. In both diseases, hypercalcemia may occur. However, in hyperparathyroidism—and not in multiple myeloma—there is also a decrease in serum phosphate and an increase in the serum alkaline phosphatase.

Finally, a very rapid blood sedimentation rate, rouleaux formation, or unexplained hyperglobulinemia or anemia should dictate bone marrow biopsy.

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Management of Juvenile Rheumatoid Arthritis

The Problem of Long-Term Rehabilitation

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• A program for the management of juvenile rheumatoid arthritis should permit the child an optimal developmental experience despite the persistence of potentially crippling inflammatory disease. Drugs are useful, although no more than palliative, and all are significantly toxic. Physical measures should be directed toward the improvement of joint alignment and mobility and the restoration of muscular strength. The emotional, social and educational needs of a child with such a chronic disability deserve the most thoughtful attention.

THE NATURAL HISTORY, incidence and prognosis of juvenile rheumatoid arthritis are well documented in a number of studies.[2,6,7,9,11,13,15,16,17] The disease is one which shows great variability, both in its severity and in its course. It may express itself as a fulminant disease with extensive visceral manifestations or as a smouldering, slowly progressive joint disturbance. There is general agreement that the disease runs a protracted course over many years. In some children the process maintains a state of continuous activity with intermittent hectic exacerbations of acute illness. In others there may be prolonged remissions which vary in duration from a few months to several years.

Although rheumatoid arthritis is a common disease in adults, it is relatively rare in childhood. In studies where the comparative incidence of the disease in adult and pediatric age groups is reported,[6,9] the incidence in children and young adolescents is found to be 3 to 5 per cent of the incidence of rheumatoid arthritis in the total population group. Recently it was estimated[11] that approximately three new cases per 100,000 persons under 15 years of age occur each year. The disease is a challenging one because of its prolonged nature, its major systemic manifestations and its potential for producing extreme permanent disability.

Diagnosis is frequently difficult. In many instances, differentiation from rheumatic fever and other conditions accompanied by inflammatory joint disease can be reached only after prolonged observation and the most painstaking study. It is now well recognized that other diseases characterized by even more extensive visceral involvement, notably disseminated lupus erythematosus, may masquerade in their earlier stages as rheumatoid arthritis.[8,22] Unfortunately, laboratory examinations offer only limited diagnostic help. Although increases in the serum acute phase reactants and alterations in pattern of the serum globulin fractions are regularly seen during phases of activity of rheumatoid arthritis, such findings are also common to other diffuse connective tissue disorders. The differential sheep cell hemagglutination test, useful in the adult form of the disease, has proved disappointing as a diagnostic aid in the childhood group.

Diverse environmental, genetic and emotional factors have been suggested as playing significant roles in the pathogenesis of this disease. Of these, on the basis of the controlled investigations which have been made,[10,18] only heredity and climatic exposure to cold can be specifically implicated. In several studies[2,9,19,20] of groups of children with rheumatoid arthritis a significant familial incidence of both rheumatoid arthritis and rheumatic fever was demonstrated. Published reports suggesting the possible role of emotional factors in the propagation of the disease were based on uncontrolled studies, so that conclusions are impossible to evaluate. Antecedent infections are frequently mentioned as playing a possible part in the initiation of the illness or in the precipitation of recurrences. No single infectious agent has been implicated, however. No general role for infectious processes in the pathogenesis of the disease has been proved. The cause of the disease and the nature of the fundamental pathologic process remain quite unknown.

In a disease of unknown cause, there is no specific treatment. It is possible, then, to place the greatest emphasis on palliative measures. If the patient is a child, with multiple developmental goals to be achieved, palliation is not enough. This presentation will emphasize those aspects of the management of juvenile rheumatoid arthritis which have to do with the fostering of optimum total development in a child who has a continuing disability. The program to be outlined is based upon experience gained at

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From the Stanford Convalescent Home, Stanford.

Presented before the Section on Pediatrics at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

the Stanford Convalescent Home over a period of three years, which will be reported in detail in a separate communication.[7]

APPRAISAL OF THE CHILD WITH RHEUMATOID ARTHRITIS

It is not within the scope of this communication to present a detailed discussion of the problems of diagnosis of rheumatoid arthritis. A carefully obtained history is essential. In addition to a thorough initial examination, repeated physical assessments must be made to evaluate progress. Since the correct diagnosis is achieved often only after a long period of observation, it is essential that continuous attention be given to the possible existence of other conditions manifested by inflammatory joint disease, and particularly to other diffuse connective tissue disorders. Constant evaluation of joint mobility is necessary if limitation of motion is to be detected in its early stages. For this purpose the accurate measurement of range of motion with a goniometer is helpful. The possibility of the late development of visceral disease or of the occurrence of such a complication as amyloid disease must be kept in mind when conducting physical or laboratory appraisals.

A thoughtful assessment of the attitude of the child toward himself and toward his disease is of great importance. Psychologists, in their considerations of the emotional impacts of the crippling diseases of childhood, have long given attention to the development of the concept of "body image." It has been shown that a child who has a prolonged disability may come to look upon himself as an incomplete person and therefore unable to compete successfully with his peers. The development of such a concept may interfere seriously with sound emotional and social maturation.

The attitudes of the parents and their feelings regarding the child's prolonged illness require careful evaluation and sympathetic understanding. Every physician is prepared to cope with anxiety and to provide reassurance and support. He must also recognize that parents not infrequently develop feelings of rejection or hostility toward a chronically ill child. Parents are seldom consciously aware of such feelings and are not likely to express them overtly. Where awareness reaches the conscious level, parents react with guilt, which further complicates the parent-child relationship. Rejection and guilt feelings are very likely to be expressed by overly solicitous behavior, which impedes the child's development through making him unduly dependent. The physician, through recognizing the complicated emotional situation which may develop within the family setting as a result of chronic disease in a child, can do much to help the harassed parents and, through them, the patient. Often all that is needed is that parents be given the opportunity to express their feelings with the knowledge that they can depend upon the physician for patience and understanding. They may then be led away from a negative preoccupation with the child's disability to pursue the positive and emotionally satisfying parental role of assisting the child toward sound development despite his handicap.

A child who has a chronic disability must feel accepted by his peers and must achieve recognition and status within a group if he is to develop normally in a social sense. For this reason it is important that he attend school in an ordinary classroom situation. An important aspect of the physician's total appraisal must therefore be his knowledge of what the school can offer. He must know something of the attitudes of the local school administration toward the acceptance of children who have major disabilities. He can learn much regarding his patient's needs through consultation with the classroom teacher. Through making himself available as a professional counselor to schools, and to other agencies within his community which provide organized group activities for children, the physician can greatly extend his effectiveness in providing for the needs of handicapped children.

PRINCIPLES OF MANAGEMENT

General Measures

The role of rest in the management of rheumatoid arthritis is a matter about which there is still some controversy. There is no question that trauma to inflamed joints must be minimized. On the other hand, prolonged immobility leads to fibrous contracture about involved joints and may eventually contribute to the development of actual fibrous ankylosis. Further, with extended bedrest, weakness of the musculature supporting the joints will develop. This will create a further handicap when the child is returned to an ambulatory status. From the metabolic standpoint it has been demonstrated that a child kept at bedrest will suffer calcium and nitrogen loss; his appetite is likely to be impaired and his intake of nutrients significantly diminished. Where one of the expressions of rheumatoid arthritis is diffuse osseous demineralization, it would appear that there are real physiologic disadvantages to prolonged periods of bedrest. It is generally possible to control the acute inflammatory reaction through the judicious use of drugs. Once inflammation has been brought under control, deformity corrected and joint mobility restored, it is desirable that the child be permitted ambulant activity. The psychologic advantages of an ambulatory program over one which is quite restrictive are obvious. If the goal of promoting optimal general development is kept in mind, it is clear that the child who has a chronic disability should be permitted a life experience comparable to that of his nonhandicapped peers.

As with any growing child, attention must be given to providing adequate nutrition. A child who has rheumatoid arthritis may have had nutritional reversals, and may therefore require a relatively large protein and caloric intake for a time, to restore earlier losses. Since persistent inflammatory disease and recurrent febrile illness pose a continuing problem, a diet that supplies adequate calories to maintain a sound weight gain and that is high in proteins and other food factors essential for growth is of great importance. In addition, attention must be given to all other matters that modify or influence optimum development. The psychologic, social and educational factors have already been discussed. Infections deserve particular attention, since they may mimic recurrences of rheumatoid disease and since they further interfere with effective physical development.

Drugs

Drugs are needed, at least for intermittent use, to control pain and to reduce the inflammatory reaction. Of the drugs available none is any more than palliative. All are capable of inducing serious toxic effects. Therefore, although the wise employment of drugs may, through control of pain, provide the critical factor which permits mobility of inflamed joints, dosage must be carefully controlled and limited to the minimum needed for symptomatic control. Table 1 lists certain of the drugs which have proved useful. Gold salts have been deliberately omitted because of their extreme toxicity. Acetylsalicylic acid, given in the lower dosage range suggested, may be administered safely over extended periods; in the higher dosage range it is necessary that the patient be observed carefully for evidences of toxicity. The adrenal cortical steroids have been widely used[4,5] in recent years for the symptomatic treatment of rheumatoid arthritis. Recent studies by British investigators[1,14] in which alternate patients were treated either with cortisone or with aspirin would suggest that equally satisfactory symptomatic control can be achieved with either agent. The undesirable side effects of the adrenal cortical steroids are well known. The recent report of Good and co-workers[12] gives dramatic emphasis to the major hazard of prolonged steroid therapy. In their series of 340 children treated with the adrenal cortical steroids or with corticotropin over extended periods of time, 10 per cent had serious untoward reactions of a life-threatening nature. Nevertheless, when employed conservatively for the amelioration of symptoms, to improve joint mobility and to increase total function, the corticoids have proved to be potent therapeutic agents. If these hormones are to be used for extended periods, every effort must be made to find the lowest dose possible for each patient. This is particularly important in the treatment of children with these agents since it has been shown[3] that, above a critical level (approximately 45 mg./M.^{2}/day of cortisone), these hormones will seriously impair skeletal growth.

TABLE 1.—*Drugs Useful in the Treatment of Juvenile Rheumatoid Arthritis*

Therapeutic Agent	Oral Dosage per 24 Hours (Given in divided doses)
Acetylsalicylic acid	50 to 100 mg. per kg.
Cortisone	25 to 100 mg.
Prednisone or Prednisolone	5 to 20 mg.
Phenylbutazone	200 to 400 mg.

Following is a regimen for the use of prednisone or prednisolone, which in our experience[7] has proved satisfactory and with which, to date, we have seen no major untoward effects of the hormones:

1. Initiate treatment with a moderate dose of prednisone or prednisolone (10 to 20 mg. per 24 hours, in divided doses).

2. Observe for a minimum of 48 hours before adjusting dosage.

(a) If prompt amelioration of symptoms occurs, begin to taper dosage by small decrements (2.5 mg. per 24 hours).

(b) If no improvement occurs, increase dosage by 1.5 times the initial dose attempted. When symptomatic relief is obtained, begin to taper dosage as in 2(a).

3. If recrudescence occurs at any time during the period of reduction of dosage or during maintenance therapy, increase the dosage by small increments (2.5 mg. per 24 hours) until symptoms are relieved.

4. Maintenance therapy should consist of the smallest dose that will sustain symptomatic remission.

5. Control of symptoms and objective manifestations of arthritis is sufficient. *It is not necessary to increase corticosteroid dosage to the level that all laboratory manifestations of inflammatory disease have returned to normal.*

6. Periodic attempts should be made to withdraw the drug completely.

With the combined use of aspirin and one of the adrenal cortical steroids it is sometimes possible to provide symptomatic relief, using an appreciably smaller dose of the corticoid than would be possible if the hormone were used alone. Wiesel and coworkers[21] recently reported comparable success in the long-term drug treatment of adults with rheumatoid arthritis, using a combination of cortisone and isonicotinic acid hydrazide.

Physical and Orthopedic Measures

The reduction of deformity and the institution of normal mobility and joint function are major goals in the treatment of rheumatoid arthritis. Pain must first be relieved, generally with the aid of drugs. In this the intra-articular injection of hydrocortisone is frequently helpful. When manipulating involved joints to increase the range of motion, the therapist must be patient and gentle, bearing in mind that weeks or months may be required to stretch the tightly fibrotic capsule of a contracted joint. Joint manipulation must be carried out in such a way that further trauma to articular surfaces is avoided. As gradual reduction of deformity is achieved, it is often helpful that splints be used at night, to maintain the gains that are made. Exercise with graduated resistance to improve muscular strength is of equal importance to joint manipulation and splinting. Unless the musculature supporting the joint is strengthened to the point that the joint is maintained easily in a physiologic position, all that is gained in the reduction of deformity may be lost. For the lower extremities, particularly where there is severe knee valgus—as so frequently there is in children with rheumatoid arthritis—bracing may be helpful at least until full muscular strength has been restored. It should be borne in mind that the maintenance of poor posture and of unphysiologic position, particularly of weight-bearing joints, materially increases trauma to joint surfaces and may well aggravate the arthritic process.

GOALS OF MANAGEMENT

The major goal is to restore the child to a condition of independence in which he may care for himself and enjoy a full life experience. The aim, as with any child, is optimal total growth and development. The physician must keep in mind the obstacles to sound development that beset a child who has a chronic disability. These include not only the physical impairment imposed by the disability itself, but emotional obstacles relating to attitudes in the child and in his parents. Social and educational obstacles may be encountered at school and at play. A further goal for the physician must be that he become an effective educator. He must educate the child and his parents, often the child's teachers, and on occasion other agencies which may be involved with the child or with his family. Lastly, in a disease so little understood as rheumatoid arthritis, the physician must constantly educate himself.

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Detection of Gynecological Cancer

Use of Fluorescence Microscopy to Show Nucleic Acids in Malignant Growth

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FRANCIS MASIN, ***M.D.,*** **and LEO KAPLAN,** ***M.D.,*** **Los Angeles**

• Early detection of malignant lesions of the cervix, a major problem in gynecology, has been made possible in more cases by the development of exfoliative cytology. Mass-screening programs have been impeded, however, by the demands on time and skill of the examiner as posed by conventional techniques.

A new method in exfoliative cytology, using fluorescence microscopy, essentially reduces the time of processing as well as of scanning of specimens. Suspicious cells show flaming orange-red fluorescence of the cytoplasm on a black background, impressively distinct from normal cells and giving a warning signal to the examiner.

This color reaction is based upon cytochemical changes—namely, the abundance of ribonucleic acid in vividly growing and especially malignant cells.

Besides gynecological material, the method is applicable to other forms of malignant disease.

MODERN RESEARCH has shown that the nucleic acids of the cell hold a key position in protein synthesis, growth and carcinogenesis. As is well known, there are two kinds of nucleic acids and consequently of nucleoproteins. The first is deoxyribonucleic acid (DNA) which is the chemical component characteristic of the chromatin of the nucleus; the second, ribonucleic acid (RNA), is mainly, although not exclusively, localized in the cytoplasm. Two general rules regarding the two nucleic acids are safely established:

1. The amount of DNA per diploid nucleus is constant within a species, irrespective of the kind of tissue. This has been verified by chemical analysis as well as ultraviolet spectroscopy and photometry in visible light.[17] The constancy of DNA content per nucleus even applies to many tumor cells in spite of pyknosis and other changes of nuclei. Changes in the chromatin and DNA content appear in connection with mitosis and polyploidy found in advanced malignant disease.[7,8,9,17]

2. A high amount of RNA is generally characteristic of cells showing high protein synthesis. This applies to both nuclear and cytoplasmic RNA. Nuclei of cells with high protein synthesis have large nucleoli and increased nuclear RNA. In the cytoplasm, RNA is mainly localized in the basophilic structures or ergastoplasm of the cell. Electron microscopic studies[11,15] have shown that the basophilic, RNA-rich material of the cytoplasm corresponds to dense granules which stand in intimate relation to the endoplasmic reticulum of the cell. According to the rule mentioned. tissues showing high protein synthesis such as vividly growing, secreting, embryonic and regenerating tissues are distinguished, biochemically, by a high content of RNA and, cytologically, by a large amount of basophilic granules in the cytoplasm. This also applies to growing malignant cells (A type after Caspersson[4]), while degenerating and necrotic elements (B type) in malignant tumors show progressive reduction and eventual loss of cytoplasmic basophilia.[5,10,13,14,16]

Classical methods in exfoliative cytology culminating in the Papanicolaou technique[12] essentially use morphological criteria for diagnosis of malignant change. In recent years there is an increasing tendency to employ cytochemical characteristics, with a view to arriving at a sharper distinction between benign proliferative processes and early or poorly defined malignancies.[6] As one facet of a considerable amount of work done in this line, it appears that a fluorescence-microscopic method using the fluorescent dye (fluorochrome), acridine-orange (AO) is highly promising in several respects. This method is essentially based upon differentiation of the two nucleic acids by AO: That is, RNA in the cytoplasm and nucleolus gives red fluorescence, DNA of the nucleus fluoresces green.

The method was first elaborated in the senior author's laboratory in Ottawa[1] and has extensively been applied in exfoliative cytology at Mt. Sinai Hospital and Clinic, Los Angeles[2].*

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Presented before the Section on Pathology at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

*A comprehensive presentation of the AO method, describing details of technique, evaluation of diagnostic results, range of applicability and cytochemical foundations, will be presented elsewhere.[3] Permanent mounts are at present not obtainable with this technique. Records can be kept in the way that, after observation with the AO method, the slides are de-stained in 50 per cent alcohol and covered with a thin film of 0.1 per cent celloidin; they can be re-stained with the Papanicolaou technique whenever desired. If the AO picture shows pathological changes, color microphotographs are routinely taken and filed. According to the experience of this laboratory, the saving of time in processing and scanning amply compensates for work and expenses involved in keeping a photographic record.

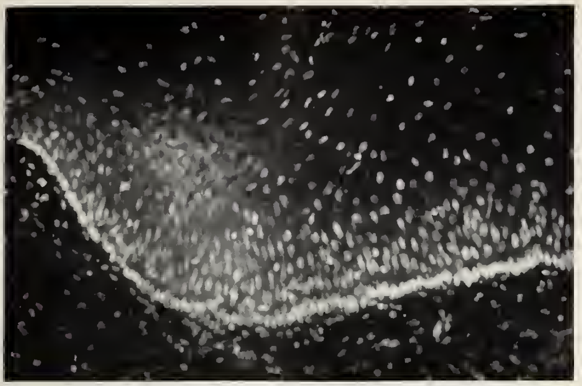

Figure 1.—Section of normal human cervix. The brightness of the basal layers indicates their RNA content. The superficial layers (top), appearing dark, lack RNA (×125).

Emphasis has been placed upon exfoliated material from the vagina and cervix. Four hundred and three gynecological cases, including 52 in which malignant disease was present and 243 cases of various cervical lesions and metaplasias, were investigated. The method was found to have a high reliability. It is illustrated here by some typical pictures.[†]

Figure 1 shows a section of the normal human cervix. In the fluorescence picture, the basal layers appear brick-red due to their content of RNA. This fluorescence color decreases toward the surface, so that the superficial precornified and cornified cells show only a greenish-gray fluorescence of the cytoplasm, corresponding to the lack of RNA. This implies diagnostic advantages. Since normally in material from the vagina or cervix superficial precornified and cornified cells are abundant, these can be by-passed and the observer's attention concentrated on cells which, by reddish fluorescence, reveal their origin in deeper layers.

Figure 2 is a normal vaginal smear showing the various cell elements. In color, precornified and cornified cells show the cytoplasm in greenish-gray. Basal cells, due to a moderate RNA content, present the cytoplasm in faint brick-red. Endocervical cells appear in orange.

Cells from metaplasias (Figure 3) reveal by vivid orange color the increased content in cytoplasmic RNA. However, morphological characteristics such as regular shape of the cells, size and shape of the nucleus and the nucleocytoplasmic ratio, still show the cells as being benign.

Figure 4 shows a picture of material under low scanning power, in a case in which malignant change was present. Among normal elements, a few cells are flaming orange-red, which immediately attracts the observer's attention. They appear strikingly different from normal cell elements.

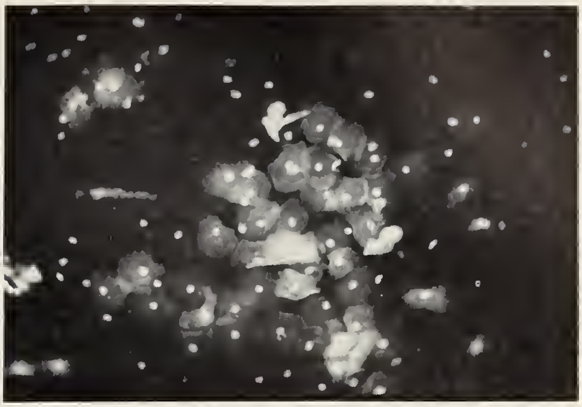

Figure 2.—Elements from a normal vaginal smear. Cornified and precornified squamous cells predominant. On the extreme right two basal cells, oval with round nuclei, appearing brighter due to moderate RNA content. On top of the cell group a small cluster of endocervical cells showing in white because of high RNA content (×125).

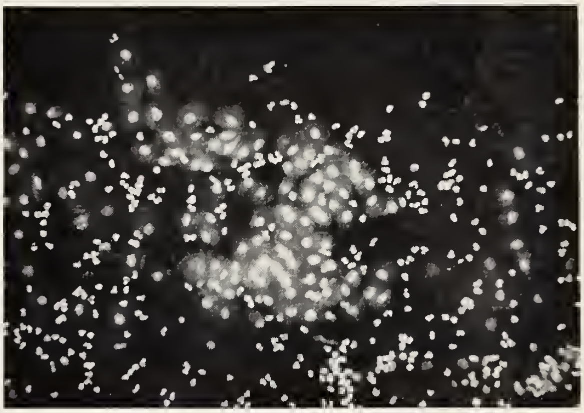

Figure 3.—Exfoliated smear from a cervical erosion showing normal outer and inner basal cells and a cluster of metaplastic cells in the center. The latter appear bright due to increased RNA content. Nuclei of leukocytes are seen throughout the picture (×125).

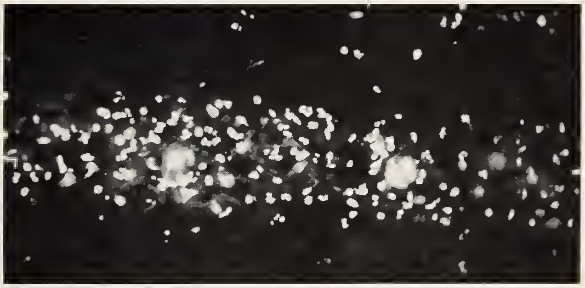

Figure 4.—Invasive squamous cell carcinoma of the cervix under low scanning power. Malignant cells stand out brightly (high RNA content). The enlarged and irregular shape of the nuclei is also visible (×45).

[†] A larger number of color microphotographs obtained with the AO technique were demonstrated in an exhibit "Diagnosis of Cancer with Fluorescence Microscopy," presented at the Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957. It should be mentioned that reproductions in black and white show neither the brillance and contrast of colors, nor many details which are easily visible in the fluorescence picture.

Figure 5 shows a cell group from an undifferentiated squamous cell carcinoma of the cervix. The malignant cells showed the characteristic morphological and cytochemical pattern: Large nuclei in intense yellow fluorescence with prominent and multiple nucleoli and flaming orange-red fluorescence of the cytoplasm indicative of high RNA content.

Figure 6 shows two malignant cells from a squamous cell carcinoma of the cervix. One of the cells shows phagocytosis. The cytoplasm appeared in brilliant orange-red.

The AO method has been tested both cytochemically and diagnostically. Cytochemically the differentiation by AO between the two nucleic acids—DNA giving green, and RNA giving red or orange fluorescence—was verified by comparison with other histochemical methods and in particular by application of the enzymes, DNase and RNase.

Diagnostically, each slide was compared with diagnosis by the routine Papanicolaou procedure. After examination with AO, the slide was de-stained, processed with the Papanicolaou technique, and the diagnoses made with both methods were compared. This procedure is recommended in doubtful cases for a second independent diagnosis.

Besides the examination of vaginal and cervical smears as already described, examination of material from selected cases of carcinoma of the uterus, endometrium, stomach, rectum, breast, lung and lymph nodes with the AO technique was carried out. Proliferating malignant cells generally showed intense fluorescence, orange-red in the cytoplasm and yellow in the nucleus, making them easily distinguishable from the cells of origin.

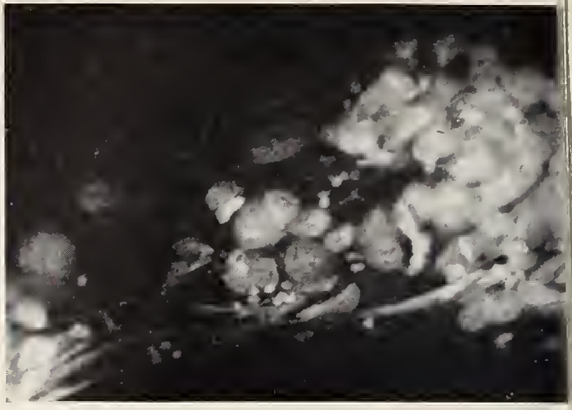

Figure 5.—Cell group from a squamous cell carcinom (undifferentiated type) of the cervix. The malignant clus ter shines brightly. Giant nuclei and irregular chromati pattern (×300).

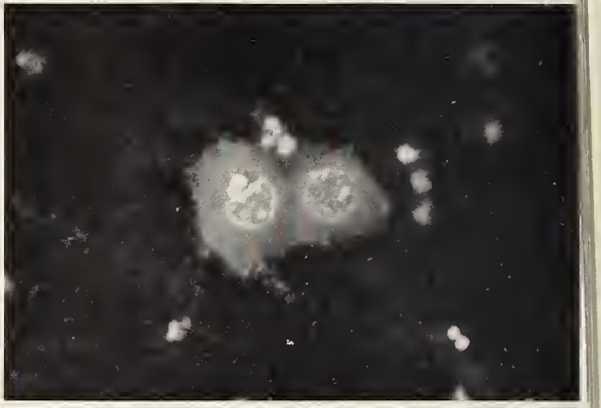

Figure 6.—Two malignant cells from a squamous cell carcinoma of the cervix with high cytoplasmic RNA content; thickened nuclear membrane; one of the cells showing phagocytosis (×320).

DISCUSSION

It is well known that the Papanicolaou method, notwithstanding its outstanding diagnostic value, is time-consuming and imposes rather high demands on a trained observer. The advantages of the AO method can be summarized as follows:

1. The method needs only a slight and inexpensive adaptation of the conventional microscope, entailing the use of a high-pressure mercury lamp with appropriate filters.

2. The technique is simple and rapid. The staining procedure takes only 6 minutes, thus materially reducing the time necessary for processing, and giving a polychrome picture by application of one dye only.

3. The brillance of the picture obtained allows for quick scanning and easy recognition of suspicious cells, so that the time for examination is essentially reduced. Under low scanning power suspicious cells call the examiner's attention by their brillant fluorescence colors; under high power an excellent evaluation of morphological criteria is possible. The average scanning time was found to be 3 minutes. The demands on the skill of the screening technician are similarly reduced. For these reasons the AO method suggests itself for programs of mass screening which up till now have been impeded by demands on time and training of examiners.

4. The AO method shows not only the classical morphological criteria of malignant disease, but also cytochemical changes certainly symptomatic of and probably basic in malignant growth.

5. It may be hoped that the AO method can contribute toward early recognition of malignant change. At present no claim can be made in this respect, as this needs follow-up studies of much material over a considerable period. Such an investigation is under way. However, the approach offered with this method appears to be promising and worthy of further elaboration.

6. The present research is concentrated on gynecological material which, for obvious reasons, sug-

gests itself for a pilot investigation. Test cases have shown that the method is also applicable to other exfoliated material, touch preparations, biopsies and frozen tissue sections.

8720 Beverly Boulevard, Los Angeles 48 (von Bertalanffy).

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Meckel's Diverticulum: Its Clinical Significance

A Report of 54 Cases

ROBERT CRANDALL, *M.D.*, and ALBERT E. HIRST, JR., *M.D.*, Los Angeles

• Of 54 cases of Meckel's diverticulum observed at one hospital in a 20-year period, 27 were noted incidentally and 27 caused symptoms. In the latter group, the patients were preponderantly males. The most common symptoms, in order of frequency, were hemorrhage from the bowel, intestinal obstruction, acute diverticulitis, and intussusception. All the complications except intestinal obstruction occurred in infancy and childhood more often than in later life. Intestinal obstruction was limited to adults. There was strong coincidence of complications and ectopic tissue. Surgical excision was done in all cases of diverticulum causing symptoms, and all patients recovered.

A MECKEL'S DIVERTICULUM is a congenital anomaly resulting from a persistence of the intestinal end of the omphalomesenteric duct. It occurs in from 1 to 2 per cent of all persons.[6] Most often it is an incidental lesion, causing no symptoms. The most frequent complications include peptic ulceration with or without hemorrhage; intestinal obstruction due to intussusception, volvulus or adhesions; and acute inflammation. Neoplasms, both benign and malignant, have been reported.[2,5]

PRESENT STUDY

The present study is a survey of 54 cases of Meckel's diverticulum observed at White Memorial Hospital in a 20-year period, 1936-1955. The cases were divided into two groups, those in which the lesion was noted incidentally, and those in which symptoms were produced by complications within the diverticulum.

The incidental group included 27 cases, 19 of which were observed at surgical operation and six at autopsy. In two the diagnosis was presumptive, based on observation of a small bowel diverticulum on a roentgenogram. The patients in this group ranged from newborn to 75 years of age, with an average age of 40 years. Sixteen of the patients were females, 11 males. In two of the 17 cases in which histologic studies were done, ectopic gastric mucosa was noted.

The symptomatic group consisted of 27 surgically proved cases in which symptoms were believed due to the presence of some complication developing within a Meckel's diverticulum. The diverticulum was submitted for pathologic study in all but one case. In this group there were 22 males and five females. All but one of the symptomatic cases occurred in Caucasians, the exception being a Negro.

CLINICAL, OPERATIONS, PATHOLOGIC DATA

Bleeding from the bowel, the most frequently observed clinical symptom, occurred in eight instances. Hemorrhage resulting from intussusception was not included in this group. Seven of the patients with this symptom were children, the age varying from two and a half months to 13 years, and the average five years. One was an adult of 80 years. All but one were males. The blood in the stools was variously described as bright red, reddish brown or tarry in appearance, and the quantity ranged from several teaspoonfuls to as much as a quart and a half. Only two patients had pain; it was described as "crampy" and it preceded bowel movement. Bleeding from the bowel had persisted for from five hours to five days before operation. Hemoglobin determinations showed anemia commensurate with the duration of hemorrhage: Anemia was not present in the patient observed within five hours of onset; in patients not observed until two to five days after onset, hemoglobin content ranged from 3.5 gm. to 7.6 gm. per 100 cc. of blood. Leukocytosis was present in every case, the number of leukocytes varying from 11,900 to 16,700 per cu. mm. The correct diagnosis was suspected preoperatively in the children. A diagnosis of "bleeding peptic ulcer" was made in the adult.

Ectopic gastric mucosa was present within the diverticulum in each of the instances of hemorrhage in children. Ulceration of the mucosa was present in five, involving the junction of the diverticulum with the small bowel in some cases, the ileal mucosa adjacent to the focus of ectopic gastric mucosa in others and, in one instance, the gastric mucosa itself. The gastric mucosa was usually recognizable grossly by its greater thickness and coarse granularity or "cobblestone" appearance, not infrequently forming a polypoid excrescence in the tip of the diverticulum

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From the Graduate School of Surgery and the College of Medical Evangelists, Los Angeles.

Submitted April 19, 1957.

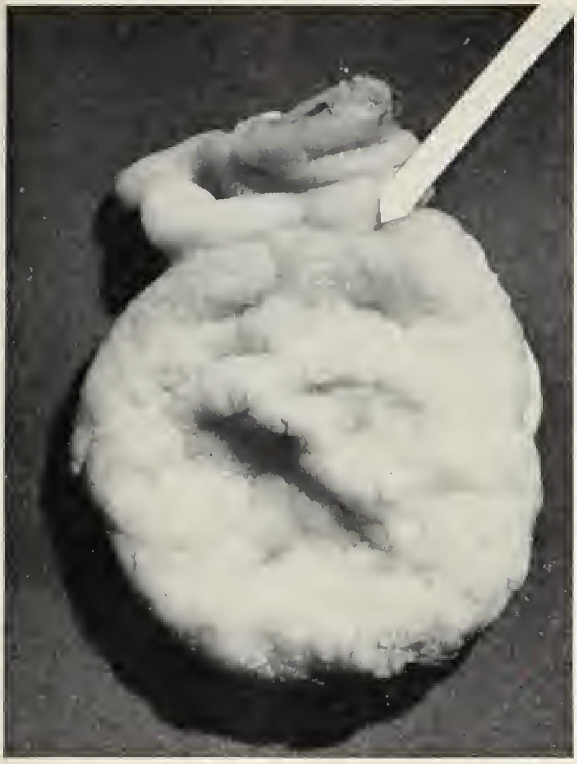

Figure 1.—Plaque-like thickening of gastric mucosa in a Meckel's diverticulum. Arrow points to site of ulceration and hemorrhage. Note large artery in ulcer base.

(Figures 1 and 2). Ulceration in the diverticulum in the 80-year-old man was associated with a leiomyoma which completely encircled the diverticulum and the adjacent ileum to form a tumor mass measuring 12.5 by 7.5 by 5 centimeters.

Intestinal Obstruction

Partial or complete intestinal obstruction was present in five of the 27 cases in the symptomatic group. All patients with this complication were adults, the youngest 26 years of age, the eldest 60 and the average age 44 years. Three had had symptoms for from four to six years; in two symptoms were of less than ten days' duration. Intestinal obstruction was consistently the result of adhesions extending from the diverticulum and surrounding the ileum, attaching to adjacent small bowel, or to the interior abdominal wall. Leukocytosis was present in only two cases, 11,500 cells per cu. mm. in one and 14,250 in the other. Histologic studies in this group usually revealed little more than chronic inflammatory changes within the wall of the diverticulum. Ectopic gastric mucosa was present in only one.

Acute Diverticulitis

Acute diverticulitis was responsible for symptoms in four of the patients in the symptomatic group. Three were boys within the age range three months to six years and one was a man 38 years of age. Periumbilical pain and right lower quadrant abdominal pain suggested a clinical diagnosis of acute appendicitis in three of the five. In only one case was the correct diagnosis considered. One patient, a three-month-old infant, had an area of induration and redness about the umbilicus in association with a diverticulum attached to the umbilicus. Perforation near the tip of the sac had resulted in generalized peritonitis. In another instance, volvulus of the small bowel occurred about an inflamed Meckel's diverticulum attached to the umbilicus. (As the volvulus was of recent origin and had not caused obstructive symptoms, the case is included in this group.) Leukocytosis, (14,050 leukocytes per cu. mm. in one case and 21,300 in the other) was present in two instances. Microscopic studies showed evidence of acute diverticulitis, either focal or diffuse in each. Ectopic tissue was not observed in any of these cases.

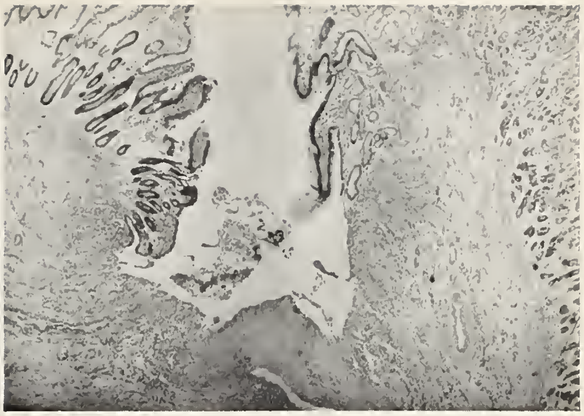

Figure 2.—Histologic section from lesion in Figure 1, showing acute ulcer lying between gastric and intestinal mucosa. Note large, partially necrotic artery in floor of ulcer (×50).

Intussusception

Intussusception occurred in four cases in the symptomatic group. Abdominal pain and rectal bleeding were the presenting symptoms in each, the duration varying from four hours to three days. All the patients were males. The age range was from four months to six years. In only one was the blood in the stool described as of the supposedly typical "red currant jelly" type. In two others, the blood was "red" or "old." In two cases there was leukocytosis—14,900 leukocytes and 18,700 leukocytes per cu. mm. A correct clinical diagnosis of intussusception was made preoperatively in each instance and the possibility of this lesion's being due to a Meckel's diverticulum was mentioned in two. An inverted diverticulum lying at the advancing end of the intussuscipiens was a consistent finding at operation. In pathologic studies it was noted that areas of ulceration were associated with ectopic gastric mucosa in two cases.

Included in a miscellaneous group were five cases in which a Meckel's diverticulum was the probable cause of the patient's symptoms. The patients were from 16 to 58 years of age and the average age was 38. All had abdominal pain. In two cases the pain was periumbilical, in two it was located in the right lower quadrant, and in one backache was the presenting symptom. The total and the differential of leukocytes were within the normal range in each case. Mild acute or chronic inflammatory changes within the wall were noted in all cases. Ectopic pancreatic tissue as well as gastric mucosa was present in one.

Finally, an umbilical fecal fistula was resected in a one-month-old boy who had been passing feces through the umbilicus. Upon microscopic study it was observed that the fistulous tract was lined with a mucus-secreting epithelium resembling that of the colon.

DISCUSSION

A Meckel's diverticulum is recognized by its location on the antimesenteric border of the ileum, by the presence of an independent blood supply from the mesentery, and by histologic observation of all layers of the small bowel. The distance of the diverticulum from the ileocecal junction varied in the present study from 8 cm. to 120 cm. The average was 52.5 cm. The sacs varied in length from 2 to 10.5 cm. and the average was 3.5 cm. In external diameter the range was from 0.6 cm. to 3.5 cm. but the diameter of most sacs was between 1.2 and 2.5 cm.

A definite relation was observed between the presence of ectopic tissue in a Meckel's diverticulum and the development of clinical symptoms. Ectopic gastric mucosa was noted in 10 of 27 cases in the symptomatic group, and in only 2 of 17 of the asymptomatic group. Ectopic pancreatic tissue was found in association with gastric mucosa in two instances. Ectopic gastric mucosa was present in six of eight cases in which massive hemorrhage occurred and in two of the four in which there was intussusception. Other investigators[1,4] also have noted a high incidence of heterotopia with symptomatic Meckel's diverticula. Gross[4] noted ectopic gastric mucosa in 54 per cent of 130 cases in which histologic study was done.

Although complications of a Meckel's diverticulum may occur in patients of any age, a much higher incidence in the younger age groups was noted: There were 50 per cent more infants and children than adults in the symptomatic group. The average age in the symptomatic group was 22, as compared to 40 in the asymptomatic group. Excluding the 80-year-old patient with hemorrhage from a leiomyoma in a diverticulum, the average age of patients with hemorrhage was five years. Excluding one adult, the average age of patients with acute diverticulitis was 2.7 years. The average age of the patients in the four cases of intussusception was 3.4 years. Intestinal obstruction was a late complication; the average age of patients was 44 years. The late onset and long duration of symptoms in the group with obstruction support a belief that the adhesive bands that cause this complication resulted from previous inflammatory changes within the diverticulum.

Hemorrhage from the bowel is the most frequent complication of a Meckel's diverticulum. It occurred in eight of the 27 symptomatic cases in the present series and in 33 per cent of the large series of pediatric cases reported by Gross.[4] Although single attacks of bleeding are the rule, multiple attacks may occur. Bleeding usually occurs in children between the ages of one and six, and rarely in persons more than 12 years of age.[1] In the series reported upon by Gross, 80 per cent of patients with hemorrhage were less than two years of age. Hemorrhage is two to five times as common in males as in females. Bleeding is usually brisk and the stool brick-red or bright red. The massive, painless bleeding from an ulcerated diverticulum is in sharp contrast to the agonizing pain and small amount of blood passed with intussusception of the bowel. Bleeding from a rectal fissure or polyp is likewise usually small in amount.[4]

It is frequently impossible to differentiate clinically an acutely inflamed Meckel's diverticulum from acute appendicitis. In the 20-year period in which the five cases of Meckel's diverticulitis in the present series were observed, there were 2,071 cases of acute appendicitis at the same hospital, a ratio of 1:414. Meckel's diverticulitis tended to occur earlier in life than acute appendicitis, two of the four cases in the present study having occurred at the age of two years or less, whereas only 12 or 0.5 per cent of the cases of acute appendicitis occurred in this age group.

The finding of a cherry-red area of cellulitis about the navel, considered by DeNicola[3] to be pathognomonic of acute inflammation of a Meckel's diverticulum attached to the umbilicus, was noted in one patient in the present series. Also, perforation had occurred, as in the instance reported by DeNicola. It appears that attachment of the diverticulum to the umbilicus is an important requisite for the sign, for in such cases the vascular supply of the diverticulum is from this source.

Five patients in the symptomatic group had had previous abdominal operation. Careful search for and removal of the diverticulum at the time of the initial laparotomy would have spared them an additional operation. In one instance, appendectomy had been done only three months before the patient was admitted to hospital with hemorrhage from the bowel.

TREATMENT

In most cases in the series the treatment was simple excision of the diverticulum. the defect being closed transversely in order to avoid narrowing of the ileum. In four cases. resection of a segment of the ileum was considered necessary because of gangrene due to intussusception or because of stenosis of the lumen. In the present study, no serious postoperative complications occurred and all the patients recovered.

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Disability Under Social Security

Medical Evaluation and Decision as to Rehabilitation

BYRON O. MORK, *M.D.*, Los Angeles

• Recent amendments to the Social Security Act give privileges to persons who are found to be disabled. In California, the State Bureau of Vocational Rehabilitation has responsibility for determining whether or not an applicant is disabled within the meaning of the Act. Each applicant must submit medical evidence provided by his own physician or by a hospital. The evidence is reviewed by both a physician and a counselor, who determine not only whether disability exists but also whether rehabilitation services might be helpful.

In the first 9,000 cases in which determinations were made, 49 per cent of applicants were found to be disabled and 51 per cent not; but in recent months the proportion found disabled has increased. Diseases of the circulatory system and nervous system, including late effects of cerebrovascular accidents, were the largest groups of conditions causing disability. Psychoneurotic conditions and orthopedic and respiratory disorders were next in order.

Some 10 to 15 per cent of applicants were referred for rehabilitation services, but of these only about one in six is accepted for rehabilitation, and only half of those accepted actually receive the services. Thus, it appears that only one per cent of workers applying for disability benefits are getting the services made available through state and federal sources to restore them to productive employment. Physicians need to be alert to opportunities provided in programs such as these to utilize all facilities to round out the full cycle of medical care.

INTEREST IN CHRONIC DISEASES and disabling conditions has increased greatly in recent years with a rising incidence of these conditions in a population with a lengthening life expectancy. Recent developments for health and welfare in labor and industry have included provision for somewhat extended coverage for long-term chronic illness. Surveys of the extent of chronic illness have been and are being made in California[5] and nationwide.[2]

Rehabilitation also has received greater recognition of late. In the fields of public health and preventive medicine, "comprehensive health service"[12] and the "five levels of prevention"[10] are topics of recent interest. In both of these inclusive categories, rehabilitation is listed as one of the essential elements. Yet programs of health agencies have rarely included any provision for rehabilitation efforts. The inclusion of effective rehabilitative benefits in prepayment medical care plans is not yet beyond the hoped-for stage.[11]

Some carriers of industrial and disability insurance have arranged to provide rehabilitation services, and in a few cities rehabilitation centers have been established. Also, state rehabilitation agencies, aided by federal grants, have provided services to many persons who had reasonable prospect of returning to gainful employment. But except for these and a few other limited activities, no really effective attack has been made on the problem of rehabilitating the two million or more people needing such services.

Data as to the incidence of disabling conditions and the possibilities for rehabilitation are quite limited. Some idea of these factors may be obtained from study of the kinds of disabilities observed in applicants for benefits under Federal Old Age and Survivors' Insurance (Social Security). About 95 per cent of workers, including most self-employed persons, are now included in this coverage, and it is estimated that 750,000 of those who are covered are currently disabled. Over 12,000 California workers had filed for disability benefits up to March 1, 1957. Therefore, a brief review of some of the conditions noted in the application of two recent amendments to the Social Security Act with regard to disability should be of value in making plans to deal with chronic disease, disability and rehabilitation. One of the amendments, enacted in 1954, is known as the "disability freeze"; it provided that periods in which an employee had no income while disabled would not be included in computing the average on which his retirement income at age 65 is based. The other amendment, passed in 1956, provided for benefits to be paid to disabled workers at age 50, and to disabled children 18 years of age or older who are dependent on parents eligible for old age or survivor's insurance.[13,15,16] Much discussion preceded enactment of these amendments, which were opposed by many medical and health groups, including the De-

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Presented before the Section on Public Health at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

partment of Health, Education and Welfare.[4] Despite this opposition, the amendments were adopted and the Bureau of Old Age and Survivors' Insurance has set up the regulations including definitions and means of determining disability.

Obviously, medical determination of the existence of a disability is a basic requirement. The amendments provided that these determinations be made by state agencies, and state Bureaus of Vocational Rehabilitation were recommended. In most of the states, including California, these bureaus are now making the determinations. The bureau can refer for rehabilitation service any person who might benefit. Under the freeze program referrals are merely recommended and permissive; under the program for disability payments to persons over age 50, referral is mandatory. Refusal without good cause to accept rehabilitative services if indicated may result in the withholding of benefits by the Bureau of Old Age and Survivors' Insurance.

In his testimony before the Senate Finance Committee on H.R. 7225 (enacted to become the Social Security Amendments of 1956), the Secretary of Health, Education and Welfare said: "There is no question that the most constructive approach to the problem of a worker's disability is, wherever feasible, the process of vocational rehabilitation."[6]

This philosophy is evident in the words used in defining disability. The common terms "permanent" and "total" are not used in the act as adopted, since they were thought to imply "complete and irrevocable helplessness" and thus to indicate that the subject was not likely to benefit from rehabilitation services. Instead, the terms used are "of long-continued and indefinite duration" and "inability to engage in any substantial gainful activity." In application, however, the terms are usually so sternly interpreted that they become tantamount to "permanent and total" in most plans. Generally, "disability" is taken to mean that there must have been a continuous period of disability of not less than six months.[6]

The act also requires that the condition causing disability be "medically determinable." Certain standards of severity for various conditions, especially the more serious impairments, have been developed in order to provide reasonable uniformity.[7] These are subject to change in the light of developments which alter outlook. For example, the requirements for considering tuberculosis as disabling have been made more stringent with recent improvements in therapy: Persons with minimal lesions are not considered disabled; and persons with more advanced lesions that have stabilized usually are not eligible. since the prospect of recovery in the foreseeable future is generally good.

Responsibility for supplying medical evidence lies with the claimant. In filing a claim for benefits the claimant must supply the needed medical, hospital, laboratory and other reports of his condition. Forms provided for these reports are sent directly to Bureau offices by physicians completing them.[3] A common misconception on the part of applicants and physicians is that the physician completing the form must determine whether disability exists or certify that the applicant is disabled. This is not asked in the form, nor is it expected. The only question of this type on the form is, "Have you advised the patient not to work?" The answer is intended to serve as a guide in making the determination. The applicant's physician is expected to present the facts as objectively as possible.

Since medical judgment is required to evaluate reports, the Bureau of Vocational Rehabilitation has physicians employed as medical consultants who review each application and, working closely with the rehabilitation counselor, determine its disposition. Frequently the medical evidence is incomplete or inadequate as submitted, and additional information has to be obtained by phone or letter from the physician who examined the applicant. If it is then still impossible to make a decision, an independent examination by a member of the panel of physicians used in the regular Bureau program may be authorized. After all essential information has been assembled, the determination is made. At the same time the question of rehabilitation is considered. If it is thought the applicant might be benefited, referral is made directly to the Bureau's rehabilitation services. All the information that has been gathered on the case is made available to the rehabilitation service. Throughout the process of determining the disposition of a claim and the question of rehabilitation, the medical consultant and the counselor work as a team, taking into consideration all the factors concerned, medical and nonmedical.

Many questions arise as to why certain detailed information is needed, or why an individual is not granted benefits when he seems disabled. Much time and patience is required to explain the necessity for determining that certain standards of severity are met. It is often difficult for the applicant and his physician to understand why an applicant who has been rated as totally disabled by the Veterans Administration is not automatically eligible in this program. Such persons and others who may be receiving from a private insurance company permanent and total disability benefits (which may be based on inability to perform his usual duties) may not have conditions meeting the requirements of "long-continued and indefinite duration" which prevent them from performing "any substantial gainful activity."

In this connection it is of interest to note sample comments made by the applicants and their physicians with regard to the advisability of working. Such statements as "My physician warned me not to work on penalty of death" are found fairly frequently, often in cases of coronary disease. Physicians' statements range all the way from advice not to work at all to encouraging some work as an important part of therapy. It seems quite likely that many physicians are not aware of statistical studies such as, for example, those which show that up to 90 per cent of patients surviving coronary thrombosis are able to return to gainful employment.[9] Another possibility is that they are being overly conservative, possibly giving the patient the benefit of the doubt in his effort to establish a claim.

Likewise, such statements as "The patient cannot return to his former occupation and I cannot think of any other for which he is fitted" would seem to indicate a lack of familiarity with rehabilitation services and possibilities. If the full potential of this "third phase" of medical services is to be developed, practicing physicians must be kept constantly aware of available services and results of rehabilitative programs of all types. It is well known that publicity on the increasing number of cancer patients who are cured and returned to useful lives helps the whole program of early recognition and intelligent care of malignant conditions. Similarly, greater awareness of the increasing numbers of patients with tuberculosis, coronary artery disease and other heart conditions, cerebral vascular accidents, and even severe mental illness, who have been restored to productive activity will improve the attitude of both the patient and the physician and thus further extend the effectiveness of medical services.

Data on 324,000 cases, the country over, in which determination was made as to disability under the Social Security regulations were recently compiled. Fifty-three per cent of the claimants were found to be disabled, 47 per cent not disabled. Table 1 shows the incidence of the various causes of disability in the persons found to be disabled and the incidence of the five primary diagnoses occurring most frequently.

For California, 12,606 applications for determination of disability under the Social Security Act were received up to March 1, 1957. Of the total, 9,009 had been determined, with 4,401 (49 per cent) found to be disabled and 4,608 (51 per cent) not disabled. Recently there has been a trend toward a higher proportion of disability determinations, at least among cases handled by the Southern California regional office, as shown in Table 2.

Complete data as to conditions causing disability among California applicants are, unfortunately, not available. Table 3 presents an analysis of 365 cases on which determinations were made by one medical consultant in the Southern California regional office during February and March, 1957. While this is a small sample, it is believed to reflect fairly accurately the general trend of California applications.

TABLE 1.—*Nature of Disability in 172,000* Cases in Which Applicant Was Found Disabled Under Terms of Social Security Act*

	Per Cent
A. Incidence of various causes of disability in persons found disabled:	
Diseases of the circulatory system (includes heart disease)	27
Diseases of the nervous system and sense organs	23
Mental, psychoneurotic, and personality disorders	13
Infective and parasitic diseases (includes tuberculosis, syphilis, poliomyelitis, etc.)	12
Diseases of the bones and organs of movement	8
Diseases of the respiratory system (excludes tuberculosis and other infective diseases)	7
Neoplasms	4
Allergic, endocrine, metabolic, and nutritional diseases (includes diabetes)	3
Other	3
B. Incidence of the five primary diagnoses most frequently made in persons found disabled:	
Arteriosclerotic heart disease, including coronary disease	15
Late effect, such as paralysis, resulting from certain vascular lesions affecting the central nervous system	10
Pulmonary tuberculosis	8
Schizophrenic disorders (dementia praecox)	8
Hypertensive heart disease, of unspecified clinical type	5

*Of 324,000 applicants through August, 1956, 152,000 were found not disabled.

It is apparent from these tables that diseases of the circulatory system and of the nervous system, including residual effects from cerebrovascular accidents, are the greatest cause of disability. In the nationwide data, these two groups comprise half of the disabilities, with psychotic and psychoneurotic conditions and tuberculosis together making up an additional one-fourth. The five most common primary diagnoses fall into these groups.

For California the general experience is similar, but tuberculosis and schizophrenic disorders are not among the five most frequent primary diagnoses. Mental retardation is shown in a separate category, since the recent addition of disabled child benefits has resulted in the filing of many claims of this type. Probably the increase in this group is temporary and will last only until the backlog of such cases is processed.

The relative frequency of conditions for which claims were made in cases in which the claimant was found not to be disabled is also shown in Table 3. It is noteworthy that a large proportion of the claims denied was made up of cases in which claim of disability was based on diseases of bone and joints, neuropsychiatric conditions and tuberculosis.

The increasing number of applicants requiring independent examinations by physicians who examine in the regular Bureau program (Table 2)

TABLE 2.—*Rulings as to Disability Under Social Security Act in Cases Determined at Southern California Regional Office of State of California Bureau of Vocational Rehabilitation During Four Months, December 1956 to March 1957*

Month	Cases Received	Disability Allowed	Disability Denied	Purchased† Medical Examinations	Referred to B.V.R.*
December 1956	493	220	231	53	20
January 1957	660	249	180	63	27
February 1957	683	231	181	57	68
March 1957	987	224	139	105	69
Total	2823	924	731	278	184

*Bureau of Vocational Rehabilitation.

†Examination by independent medical examiner to supply data that was more recent than that available or was needed to give additional information.

TABLE 3.—*Conditions Causing Disability: Analysis of 365 Cases Observed by One Consultant in the Los Angeles Regional Office, State of California Bureau of Vocational Rehabilitation, February and March, 1957*

	Allowed		Denied	
Disability Classifications	No. Cases	Per Cent	No. Cases	Per Cent
A. Incidence by disability by various classifications:				
Diseases of the nervous system and sense organs (includes vascular lesions of central nervous system)	49	22	7	5
Diseases of the circulatory system (includes heart disease)	47	21	20	14
Mental psychoneurotic and personality disorders (excludes mental retardation)	23	10	33	24
Diseases of the bones and organs of movement	22	10	34	24
Disease of the respiratory system (excludes tuberculosis and other infectious diseases)	17	7.5	9	7
Mental retardation	17	7.5	0	0
Combinations of two or more conditions	17	7.5	14	10
Infectious and parasitic diseases (includes tuberculosis, syphilis, poliomyelitis)	16	7	13	10
Neoplasms	13	5	4	3
Other	5	2	5	....
Total	226		139	

	Allowed		Denied	
Primary Diagnosis	No. Cases	Per Cent	No. Cases	Per Cent
B. Incidence by primary diagnosis:				
Arteriosclerotic heart disease, including coronary disease	24	11	14	10
Hypertensive heart disease	21	10	6	4
Late effect, such as paralysis, resulting from certain vascular lesions affecting the central nervous system	17	8	5	4
Mental retardation	17	8	0	0
Diseases of the respiratory system (excludes tuberculosis and other infectious diseases)	16	7	4	3
Schizophrenic disorders	15	7	9	7
Pulmonary tuberculosis	12	5	13	10

probably reflects the fact that more claimants of a younger age group are filing claims now that it is possible to get Social Security payments at age 50 if disabled. Part of the increase is also due to the greater number of persons who have been ruled not disabled and who are filing for a reconsideration or hearing on their applications, as provided in the law. These independent examinations are authorized only when other medical evidence is too old or is inadequate or conflicting.

Referral of persons applying for disability benefits to state rehabilitation agencies is likewise increasing. This is because of an increase in applications for disability payments in which acceptance of rehabilitation services is required. Recent data for California show between 10 and 15 per cent of applicants are now being referred (Table 2). However, data compiled by the state Bureau of Vocational Rehabilitation show only about one in six of the persons referred are being accepted by the Bureau, and only about half of those accepted are actually receiving services.[14] This indicates either that referrals are not being adequately screened or that not enough services are available. Probably both factors are present to some extent. Certainly, not all persons who could benefit from rehabilitation services are receiving them. In the recent study of rehabilitation services for tuberculous persons in California, it was found that 15 per cent of patients studied needed the services of the Bureau of Vocational Rehabilitation, but only 6 per cent had received them.[8]

Since the Social Security disability benefit program is concerned with a class of persons in which the number of candidates for rehabilitation services may be expected to be relatively high, it is evident that all efforts to properly screen and refer persons with good rehabilitation potential and to augment existing services must be intensified if the opportunity to help them is to be fully realized. It will require the cooperation of all physicians in private practice, in industry, in public health and other governmental agencies and hospitals, and of all auxiliary personnel to restore as many workers as possible to productive capacity.

Statistics do not tell of the many encouraging incidents that occur in reviewing medical reports. In several cases previously unknown lesions in the chest were diagnosed by independent examination of an applicant. Psychiatric conditions were noted in a few instances. Cancer of the breast was discovered in one case. Recommendations for operations on the heart or chemopallidectomy for Parkinsonism and renewed interest in surgical correction for long-standing defects as a result of examinations demonstrate that many physicians are aware of recent developments in rehabilitative procedures and are able to impress the applicants with the values to be realized by availing themselves of such services.

As data accumulates in the Social Security disability benefit program, study of the facts as to relative frequencies of disabling conditions will add greatly to knowledge of the extent of chronic, and disabling illness in the working population and thus assist in making preventive and therapeutic procedures more effective. Data as to persons selected for rehabilitation services and the acceptance and use of such services by the patients should also be of great value in evaluating the services.

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Acromioclavicular Dislocations

Open Reduction with Screw Fixation

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• Athletes with complete separation of the acromioclavicular joint were uniformly restored to full athletic competence by an operation consisting of direct repair of the involved ligamentous structures with temporary fixation by a metallic lag screw approximating the clavicle to the coracoid. The metallic fixation was left in place an average of eight weeks and the screw was then removed under local anesthesia. A number of professional and collegiate football players returned to the rigors of football with no discomfort or disability.

For treatment of acromioclavicular dislocations, we have found that the Bosworth screw technique,[1,2] as modified to fit our circumstances, has been most successful. This report is to outline the technique as adapted for use by the orthopedic department of the Palo Alto Medical Clinic, and the results obtained.

The acromioclavicular joint is very resistant to trauma. Maintained in position as it is by a well-developed joint capsule and held down with its two ligaments. the conoid and the trapezoid, it resists stress from various directions. When there is subluxation of the joint, there is stretching or partial tearing of the capsule and possibly to some extent of the acromioclavicular ligament as well. With a complete rupture, the acromioclavicular ligament, capsule and coracoclavicular ligaments are torn. Mild sprains and subluxations are treated conservatively. It is with complete dislocation that we are dealing in this report.

At the Palo Alto Medical Clinic, patients with complete dislocations have been athletes, most commonly. We have taken care of the medical needs of the Stanford University students for many years; and Dr. Fritz Roth, who has been the football team physician at Stanford since 1926, originally used the Bosworth technique in 1946 and recommended it to us. emphasizing that any laxity in the joint and supporting ligaments remaining after treatment may constitute a painful handicap to all athletes and especially football players. In his extensive experience, conservative treatment had proved inadequate for complete dislocations.

The operation was formerly done under local anesthesia, with the patient in a sitting position. However. we have found this position rather cumbersome and awkward. We therefore place the patient supine, under general anesthesia, with the shoulder and arm, in sterile drapes, free on the table. The coracoid process is identified by palpation. The incision is then made from the acromial margin and along the anterior border of the clavicle to the midshaft. Arthrotomy is done to permit replacement and repair or removal of torn capsule which is usually found displaced into the joint. We believe that stronger and more physiologic healing then occurs. By subperiosteal reflection of the deltoid from the anterior border of the clavicle, the coracoid process is exposed. The dislocation is then reduced.

Following the reduction, a drill-hole is made in the clavicle, large enough to permit easy insertion of a metallic lag screw with a broad flat head. It should be possible for the bare shank of the screw to move slightly in the hole in the clavicle. Then a small hole may be made in the base of the coracoid process with a drill or an awl to facilitate the entrance of the screw. The usual length of the lag screw is one and one-half inches. The screw is inserted as vertically as possible and to the extent that it penetrates the inferior cortex of the coracoid process. The margins of the acromioclavicular joint are brought into proper relationship by adjusting the screw under direct inspection and palpation. The capsule of the acromioclavicular joint is then easily repaired. Occasionally, one may also suture the coracoclavicular ligament. The patient carries his arm in a sling for several days and then is allowed free motion below 90 degrees abduction.

We have found this method safe and most successful. Since shoulder movements are carried out almost immediately after operation, there is usually no loss of motion. If the patient is an athlete, he is allowed to jog within a matter of days to keep in condition. The screw is removed later. The time between insertion and removal has varied from 31 to 108 days, but we now feel it can be removed safely after 42 days. It should be noted that if the screw is left in place too long, bone forms around

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Presented before the Section on Orthopedics at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

the head, the drill hole in the clavicle will be worn larger, and there is more calcium formation around the coracoclavicular ligament.

The operation described was done in 22 cases. In 18 cases the injury was received in football, basketball or wrestling, one in polo, one in a fall while drunk, and two in automobile accidents. All the patients were males. All but two were fresh injuries. The left shoulder was involved in 16 cases, the right in six. The average age of patients was 25 years, and 13 patients were under the age of 25. The average number of days the screw remained in place was 57, but, as previously noted, recently we have removed the screw in six weeks.

Complications occurred in nine cases. In one case the screw bent when the patient played basketball prematurely. Wound infection developed in two cases; in both it cleared up before the screws were removed. In two cases the wounds were torn open and healing was delayed. It should be noted that patients of the kind comprised in this series are often difficult to manage, owing to their sometimes uncontrollable desire to participate in sports and athletics. One patient had adhesive capsulitis. He was 65 years of age and the injury had been received in an automobile accident. In one case the screw, a conventional stainless steel bone screw, pulled out. The patient was operated upon again and the result was good. The use of lag screws has obviated this difficulty. One patient complained of pain after operation but preferred not to have anything more done. He was seen two years later following a skiing accident, and no mention was made by him at that time of further difficulty with the shoulder. One patient had been treated previously elsewhere by immobilization of the joint in a cast and had continued to have pain in the shoulder that prevented his playing football. For him we supplemented the operation with a fascial graft to reconstruct the coracoclavicular ligament. The patient later was a first-string college football player.

One football player who had the operation became one of Stanford's greatest passers, using the shoulder that had been operated upon. Two patients who were professional football players successfully continued football careers, one having returned to play the same season he was injured. In only one case in the series, that of the elderly patient with adhesive capsulitis, was there limitation of motion.

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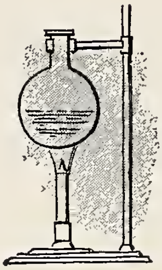

The High School Football Team Physician

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• Mutual confidence is necessary between the football coach and the team physician. The physician's decision in the matter of a boy's condition must always be final. The coach should also consider the physician's advice in shaping his psychological appeals to the players in before-game and between-halves talks. The physician should be on his way to a man injured on the field as soon as the play is ended. It is up to him and not the trainer or coach to make the diagnosis. The physician must have the ability to make an immediate evaluation of the extent of injury and use appropriate measures to get the player off the field. To see a semi-conscious man with dangling head being half dragged off the field is far worse from the patient's standpoint and from the spectator's standpoint than removal by stretcher.

"Doctor, is Andy ready to play again?" Such a question by the coach in the midst of a tight football game has a real significance. It means much more than whether or not Andy has recovered from a short period of grogginess earlier in the first quarter. It means that there is a worthwhile understanding between the football coach and the team physician. It means that the coach has complete confidence in the doctor's judgment and is relying on him to safeguard the boys against further injury. Furthermore it implies that the physician has been quick to evaluate the boy's present condition accurately and completely and that he will permit him to be sent back into the game if he can do so in conscience. From the coach's standpoint, a competent, mature medical associate lifts the burden of the crucial questions which constantly arise: "Can I use Andy (or Bill or Larry)?"

Such a relationship I was fortunate to have for 25 years with Clarence Schutte, football coach at Santa Barbara High School. In all the 200 or more games played in that time, I never had my medical judgment questioned. Never was a boy returned to play unless I gave the word.

Another field in which the coach should—and in my own case did—rely on the physician's judgment concerns matters of psychology. Coach Schutte was a master psychologist but seldom did he make a "before-game" or "between-halves" talk without his asking me, "How are the boys?"

Before the game I used to spend an hour with them, strapping ankles and knees and backs—the usual preventive supporting aids. The boys might be highly keyed up, or they could be sluggish, or downright depressed. My impression would be conveyed to the coach and would influence the kind of pep talk he would give.

As an example, I would like to relate an incident. It was in a semi-final game and at the end of the half the score was 20 to 0 against us. The team was depressed, naturally. There was a feeling, as I sensed it, of a wounded bear licking his wounds in an almost morose attitude. There was plenty of unused power in our team but lack of coordination and a few questionable penalties had put us on the low end of the score. When the coach asked my opinion, I suggested that he not ride them for their mistakes but to appeal to their pride. This he did, simply, in a few words. Our team won.

A physician to a football team must know a specialized kind of first aid.

Head and Neck: A man gets a dazing blow to the head but does not lose consciousness. He gets up slowly and shakes his head and strikes his helmet with the palm of his hand to clear the wooziness. This man should be watched but not necessarily taken out. A second man gets a mild concussion. He is semiconscious for a moment only. Aromatic spirits of ammonia revive him completely but he should be taken out. He can use cold towels on his head and if after 15 minutes of rest he thinks perfectly clearly he may play again. (I usually ask him his mother's maiden name or some such question.) A man who is really out cold when he is on the field should always be brought in on a stretcher, never be walked off or dragged off. There may be an associated neck injury and it is very bad from the standpoint of the spectators to see a semiconscious boy walked off the field with his head bobbing from side to side, to say nothing of the possibility of further serious damage to the patient. A boy with a severe concussion usually lies perfectly still. X-ray films of the skull should be taken in such an instance. A neck injury and some head injuries lead to clonic spasms which of course are themselves indicative of severe injury.

Presented before the Section on Orthopedics at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

Chest: In cases of rib fracture, point tenderness is elicited on pressure and pain on compression of the chest wall from side to side and from front to back. A boy with a rib fracture cannot play again until the fracture is healed—two to three weeks. A boy may have a costochondral injury. These injuries are in a line from the second rib near the sternum just down inside the nipple line onto the 8th and 9th ribs. The signs are the same as for fractures but x-ray films show no abnormality. An x-ray film negative for fracture does not rule out rib injuries. A player with costochondral junction injury may play in a week if he is well strapped up.

Abdomen: Occasionally a kick or a blow with a bent knee may cause abdominal injury but rarely is it serious. A boy with a muscle wall injury should not play again during the same week. If it is a simple concussion of the solar plexus from which he has made a good recovery, he may play during the week. A severe blow may rupture the spleen or kidney and immediate operation may be necessary. The testicles may be bruised, with excruciating pain. This injury will usually respond to cold towels and if it is not severe the boy may not be incapacitated.

Upper Extremity: Injuries of the upper extremity may include dislocation of the shoulder, elbow or fingers. The deformity is usually perfectly obvious and if the dislocation can be reduced immediately there is little pain or difficulty—except for the well known "button-hole dislocation" of the first metacarpal phalangeal joint. In players of high school age there are seldom any fractures associated with the dislocations although there occasionally may be an epiphyseal separation in the younger boys.

Fractures may take place in the collar bone, the shoulder blade, the arm or forearm, wrist or fingers. A physician skilled in diagnosis and reduction of fractures can reduce some of them immediately in the club house, and splint the injured member with sling or Yucca board. Then the patient should be taken to the hospital and x-ray examination done. If doubt exists in the physician's mind as to diagnosis or his ability to reduce the fracture, the boy should be sent to the hospital immediately for x-ray examination and preparation for anesthesia. Then the physician can go to the hospital after the game. The injured part should be enveloped in cold towels in the waiting period. Collar bone injuries are becoming rare, thanks to the heavy shoulder pads, but acromioclavicular joint separation is increasing in frequency.

Spine: Spinal injuries in football are rare. Those that do occur are usually compression fractures and they should be dealt with of course by placing the player on a stretcher face down. (I often shudder to see trainers or coaches lifting a prostrate player knee-high by the belt and causing acute hyperextension of the spine on the assumption that "the wind has been knocked out."

Injuries in the lumbosacral joint or even the sacroiliac joint are fairly common. The player can usually be walked off the field but should not play again the same day. It may be possible for him to play again in one week if he is well strapped up but the convalescence may be delayed by such a practice.

Thigh: A charley horse or severe contusion of the thigh is a paralyzing injury which may put a player out of combat at once. It may not be incapacitating until after the shower is taken. If severe or extensive, it may disable the player for several weeks. The danger lies in the possibility of development of myositis ossificans in the quadriceps muscles. This bony growth takes place in an irregular form and is a bad sequela of the contusion. The immediate treatment is an ice pack. It should be put on as soon as possible and followed in six hours by heat. The ice pack reduces the intramuscular bleeding. Some coaches will bind a hematoma very snugly with an elastic bandage and allow the patient to play again in a week, but this is not good practice, in my opinion, because of the possibility of the detachment of emboli from the blood clots.

Knee: Knee injuries are a *bete noir* to all football physicians. The type of injuries commonly classified as internal derangements may be many. There may be a rupture (usually only partial) of the internal lateral ligament from a blow on the outer side of the knee. This is why "clipping" is dangerous. If a severe rupture is present, as determined through an x-ray examination, immediate surgical repair is indicated. If partial or complete rupture of the internal lateral ligaments is suspected, the extent of the tear may be determined by forcing the knee into valgus during x-ray exposure and noting the spread on the inner side of the knee. A wide separation requires early operation, but recovery usually is prompt.

An injury to the internal semilunar cartilage may be a simple separation of the cartilage from the capsule, or it may be a split, either semitransverse or longitudinal. The latter may become a "bucket-handle" tear if the detached fragment is forced into the central joint space. If the joint is locked or limited in extension, immediate manipulation is often possible followed by semifixation in an elastic bandage so applied as to reenforce the inner side of the knee. It is better to do this in the club house than on the side lines. The injured player should use crutches and should not be permitted to play for from two to four weeks, the time depending on the type of and the severity of the injury. If the knee is still painful after manipulation and lacks 10 to 15 degrees to full extension, it is best to consider early operation for removal of the injured cartilage. A rapid recovery is possible by this procedure and the boy can play again in six weeks if he has had adequate physical therapy following operation.

Legs: Cramps in the legs are a very common emergency on the playing field. They are usually in the calf and can be controlled by dorsiflexing the foot with the knee straight. The foot is held in this position for a count of 30 seconds and the cramp is usually abated by that time. A cramp of that kind is usually owing to low calcium in the blood. Calcium gluconate, 1 gm. tablets, or calciglyphos-D, 0.5 gm. tablets, should be administered for a week.

Ankle: The best first aid for an ankle injury is the prevention of the injury. Most sprains are of inversion type. If the ankle is skillfully taped in eversion before the game, many sprains can be avoided. I put emphasis on the eversion, for I have seen many fancy strappings applied which were absolutely worthless because they overlooked this important point. When a sprain of any great severity does occur, the man should not play for two weeks. I heartily disagree with those who inject procaine or hydrocortisone and let the man play the second half, for torn ligaments do not heal if treated so. The possibility of fracture should always be considered, and if there is tenderness on either malleoli, of course the ankle should be examined by x-ray.

Feet: Athlete's foot, or epidermophytosis, is always a menace but can be controlled. Sometimes a player may appear from the sidelines to have an injury of the foot and to be summoning the team physician—who may hurry onto the field to find that what is needed is a new shoestring. New shoestrings are easy to carry in a physician's bag.

There is considerable difference of opinion as to whether the physician should go out onto the field in every case of injury. In my opinion, he certainly should. It is his duty to spot a man who is down and to be on his way at once. Diagnosis should not be left to the trainer. It is true that one will make some unnecessary trips to the field but the damage that will be saved to the individual will make it worthwhile in the long run. A few aromatic ammonia capsules in the physician's pocket come in handy for clearing up wooziness, but a stretcher should be called for without hesitation when occasion demands. It is horrifying to see a totally unconscious boy being partially dragged and partially walked off the field with his head flopping from side to side as the supporting trainers stepped along. For what if that boy had a broken or dislocated neck! The physician could not tell the extent of the damage from a short examination of a totally unconscious boy. So the stretcher's the thing.

Some statistics: In 25 years at Santa Barbara High School football games we have had no fractured skulls, one case of fractured neck (in a player on an opponent's team), one case of fractured femur, ten cases of fractured wrists or epiphyseal separation and about five fractured ankles. Rupture of a kidney occurred in one player. Of course there have been a larger number of knee and chest and acromioclavicular injuries.

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CASE REPORTS

Vogt-Koyanagi Syndrome

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THE ENTITY known as Vogt-Koyanagi syndrome is familiar to most ophthalmologists. It is very similar to (or perhaps even a form of) other reported disease entities such as Harada's disease, Cogan's syndrome and forms of uveo-encephalitis. All the diseases and syndromes mentioned have variations as to symptomatology but common to them are bilateral inflammation of the uveal tract, of varying degrees, and auditory abnormality. Also, there may be varying degrees of labyrinthine involvement. It is because of the symptom of hearing loss that the condition becomes of interest to an otologist. Sudden deafness was the first symptom in the case herein reported.

The disease complex was first described in this country by Parker in 1931 and the term Vogt-Koyanagi syndrome was applied by Carrasquillo in 1942.[4] The etiologic factors are not well understood but the disease is considered in some cases to be a form of sympathetic ophthalmia. The consensus is that a virus is the principal cause, but some investigators believe it due to hypersensitivity. Recently, in the case of Cogan's syndrome, there have been suggestions of similarity of the syndrome to periarteritis nodosa, as was emphasized by a report by Boyd in 1956.[1] Although the disease was considered rare, in that there were only 70 cases reported up to 1953, more and more have been observed and five cases were reported in San Francisco alone in one year.[2]

The points of similarity and differences between the entities described are shown in Table 1. Vertigo, tinnitus, bilateral nerve deafness, pain in the eyes and engorgement of the ciliary vessels of the eye are common to all three syndromes. Also, labyrinthine function is depressed to a variable degree in all three. Only as to uveitis, alopecia and vitiligo is there a definite distinction between the disease entities. Hence the conjecture that they are probably variants of a similar pathologic process.

Because of the nature of the disease, it is of interest to note the possible effect on it of the administration of corticotropin.

REPORT OF A CASE

A 21-year-old woman student had diarrhea. Then acute infection of the upper respiratory tract, with sore throat and earache, developed within a few days. Upon treatment by a physician, the earache subsided but dizziness and impairment of hearing then developed and the patient was referred to an otologist.

The patient complained of pronounced impairment of hearing, pulsating tinnitus, dizziness and unsteadiness of gait, moderate coryza and a slight change in the voice. Upon examination, the presence of serous fluid in the right middle ear was noted and there was considerable engorgement of vessels in the left drum membrane. Audiograms showed profound bilateral loss of hearing of a nerve impairment type at all frequencies between 50 and 60 decibels. No responses to bone conduction tests were obtainable. Right myringotomy and aspiration was done

TABLE 1.—*Comparison of Symptomatology of Vogt-Koyanagi Syndrome with that of similar conditions*

	Vogt-Koyanagi	Harada's	Cogan's
Vertigo	±	±	+
Tinnitus	+	+	+
Nerve deafness (bilateral)	+	+	+
Pain in eyes	+	+	+
Engorgement of ciliary vessels of the eye	+	+	+
Labyrinthine function	±	±	Depressed
Uveitis	Anterior segment	Posterior segment	—
Alopecia	+	+	—
Vitiligo	+	+	—

Presented before the Section on Ear, Nose and Throat at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

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but there was very little improvement. Audiograms about a week later showed no improvement in hearing.

Edema of the eyelids having developed during this period, the patient was referred to an ophthalmologist, who noted pronounced photophobia and slight bilateral loss of vision with considerable edema of the left lids and conjunctiva. Mild iritis was present. No disease of the retina was observed. Hydrocortisone drops were used topically and Meticorten® was given by mouth (0.5 mgm. tablets, four times a day for three days). Three days later, the swelling was less than before in the left eye but greater in the right. Photophobia persisted.

The patient was later referred to a neurologist, who reported no neurological evidence that the impairment of hearing might be owing to a space-occupying lesion in the central nervous system.

In the course of extensive examination three weeks later, the patient was seen by three otologists and by three ophthalmologists. In addition, several neurologists were called in consultation. As part of the examination, she had testing of the labyrinthine mechanism using caloric tests and there was no response to this testing in either ear. During the three weeks of hospitalization, the following were carried out:[3] An electroencephalogram, hemogram and sedimentation rate, a fasting blood sugar and nonprotein nitrogen determinations, a Kolmer test, and determination of the protein content of the spinal fluid. None showed evidence of deviation from normal. Virus studies were negative for the entire virus panel.

The thresholds obtained by audiometry were checked by psychogalvanic skin response and were found to be consistent and speech test results were consistent with pure tone test results.

During the three weeks the patient was in hospital, both topical and systemic steroid therapy were continued. The ocular symptoms improved dramatically but the hearing only slightly.

The improvement which was noted almost immediately in the ocular symptoms was probably owing to the fact that Meticorten therapy was begun almost at the onset of this particular case. It is interesting to note that the symptoms involving the eighth nerve were not appreciably affected by the oral cortisone therapy.

When last examined some six months after the onset of the disease, the patient was considerably improved with regard to general condition. The symptoms referable to the eyes had completely subsided and the hearing was slightly improved.

SUMMARY

In a case, which suggested a possible variant of Vogt-Koyanagi syndrome, points of similarity between that condition, Harada's disease, Cogan's syndrome and uveo-encephalitis were noted, and the suggestion was reaffirmed that these are probably a variance of a similar disease. The exact etiologic process is not known but the possibility of a virus origin plus a hypersensitive state is suggested. Steroid therapy was employed throughout this case. Pronounced improvement and ultimate cure of ocular symptoms occurred but symptoms relative to the eighth nerve were not much improved.

406 North San Mateo Drive, San Mateo.

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1. Boyd, G. G.: Cogan's syndrome, Arch. Otolaryng., 65:24, Jan. 1947.

2. French, L. R.: Uveo-encephalitis case reports, Stanford Med. Bull., 11:232-233, Nov. 1953.

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Auto-Sensitization to Erythrocytes

A Report of a Case

HENRY H. HENSTELL, M.D., and
MIRIAM KLIGERMAN, B.S., Los Angeles

THE CLINICAL SYNDROME characterized by painful ecchymosis with auto erythrocyte sensitization was described by Gardner and Diamond[1] in 1955. We recently observed a case which corresponded with their description. With the exception of two possible cases reported by Whitfield[2] in 1921, the four cases reported by Gardner and Diamond are the only cases of this syndrome in the literature.*

CASE HISTORY

A 40-year-old woman, first observed March 5, 1956, for treatment of a large, painful area of ecchymosis in the right popliteal area, gave a history of occasional development of ecchymotic lesions, mostly in the extremities and sometimes across the shoulders. Pain deep in the muscles or subcutaneous pain usually preceded appearance of the lesions, and little or no trauma was associated with them.

In 1947 pain developed in the right shoulder. It was diagnosed as arthritic and was treated with heat. In December 1950, painful areas developed in the shins and there was a recurrence of the shoulder pain. In March and April 1951, during an episode of "flu," the patient noted generalized aches and especially pain in the wrists and forearms. A purpuric eruption over the right wrist ensued. She also noted profuse bleeding from even slight cuts. Biopsy specimens of skeletal muscle and skin were removed and when examined interstitial myositis, periangiitis, edema of the dermis and endothelial proliferation

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*Since this report was prepared, additional cases have been reported (Gottlieb, P. M., Stupniker, S., Sandberg, H., and Woldow: Erythrocyte auto sensitization, Am. J. Med. Sci., 233:196-203, 1957.

From the Institute for Medical Research, Cedars of Lebanon Hospital, Los Angeles 29, and the Department of Medicine, University of Southern California School of Medicine, Los Angeles 33.

Supported by Grant No. H-2268 from the Department of Health, Education, and Welfare, National Institutes of Health, Bethesda, Maryland; and a grant from Leukemia Research, Inc., Los Angeles.

Submitted April 18, 1957.

were observed. These changes were consistent with collagen disease but a definite diagnosis of scleroderma or dermatomyositis could not be made. At that time the hemoglobin content was 13.7 gm. per 100 cc. of blood and erythrocytes numbered 5,000,000 per cu. mm. Packed cell volume was 41 per cent of the whole blood. Leukocytes numbered 6,400 per cu. mm.—68 per cent polymorphonuclear, 24 per cent lymphocytes and 8 per cent monocytes. The sedimentation rate was 22 mm. in one hour (corrected Wintrobe). Bleeding time was 5 minutes, clotting time 4 minutes 30 seconds and prothrombin concentration 75 per cent. The bone marrow showed increased erythropoiesis. No abnormality was noted in the urine.

In May 1954, the patient was put in the hospital because of severe abdominal pain and diarrhea. Salmonella Kentucky was found in the stool. The hemoglobin content was 11.6 gm. per 100 cc. of blood and erythrocytes numbered 4,340,000 per cu. mm. The leukocyte content was 6,100 per cu. mm. and 68 per cent were polymorphonuclear cells. Upper gastrointestinal, small bowel and barium enema x-ray studies showed no abnormalities.

In February 1955 hysterectomy was done for the removal of uterine fibroid tumors.

Pain and bruising of the extremities continued, and in January 1956, many ecchymotic lesions developed about the right elbow and forearm. The patient also had pain in the right thumb. Wrist drop ensued. A diagnosis was made of paresis of the ulnar and radial nerves due to compression by hemorrhage. Prothrombin, bleeding and clotting times were normal. There was improvement in the course of five days but the area continued to be very painful.

The patient also had acute episodes of nausea with unproductive retching at irregular intervals, which seemed unrelated to diet. These attacks were of one to two days' duration and did not respond to Dramamine® (dimenhydrinate), Bonamine® (meclizine hydrochloride) or Emetrol.® The patient had episodic pain in the middle lower abdominal region which was not related to the nausea and which responded to antispasmodics.

There was a history of recurring cystitis, over a period of 15 years, which responded to Gantrisin® (sulfisoxazole). Keratoconus was noted in both eyes.

When the patient was examined March 5, 1956, the packed cell volume was 41 per cent of the whole blood. Platelets numbered 600,000 per cu. mm. No abnormality was noted in the bone marrow. The blood sedimentation rate was 50 mm. in one hour (Westergren). Recalcified clotting time was 5 minutes 40 seconds. Prothrombin concentration was 86 per cent, prothrombin consumption 84 per cent, Factor V 112 per cent and Factor VII 54 per cent. Fibrinogen content was 367 mg. per 100 cc. No abnormalities were observed in the stools, examined on three occasions.

The long history of painful ecchymosis suggested the possibility of auto-sensitization to erythrocytes. Tests for auto-sensitization were made on two occasions. Venous blood was drawn and 0.1 ml. was promptly injected intradermally. In two days a small hemorrhagic area had appeared in the skin about the site of the injection. Two weeks later 0.1 ml. of packed red cells from the patient's blood which had been heparinized and washed was injected intradermally. Within several hours a hemorrhagic area a little more than an inch in diameter appeared around the site of the injection. Two days later it was slightly smaller and the center was densely hemorrhagic. There was no reaction to injection of saline solution.

DISCUSSION

In the four cases of auto-sensitivity to erythrocytes reported by Gardner and Diamond,[1] the initial onset of the painful ecchymosis was preceded by trauma and extravasation of blood. In the patient reported upon herein, no history of initial trauma was elicited. The Factor VII deficiency found on one occasion suggests that sensitization could result from extravasation of blood due to clotting defects. Three of the patients reported upon by Gardner and Diamond had episodes of abdominal pain, as did the patient in the present case, who also reported nausea and unproductive retching. It appears that the syndrome of auto-sensitivity to erythrocytes should be included among those considered in the differential diagnosis of abdominal pain.

In the present case the changes noted in specimens of skin and skeletal muscle were suggestive of collagen disease but a positive diagnosis could not be made.

Gardner and Diamond[1] reported that attempts to desensitize patients by intradermal injections of whole blood, erythrocytes or stroma were unsuccessful. One of two patients who had splenectomy had remission for three years. One patient had some remission of pain when cortisone acetate was taken by mouth.

Since there is no apparent treatment for disease of this type, none was attempted in the present case.

A positive diagnosis of auto-sensitivity to erythrocytes can be made quickly and easily by intradermal injection of red cells from the patient's blood.

SUMMARY

A case of painful ecchymosis with concomitant abdominal pain and nausea, due to auto-sensitization to erythrocytes is reported.

4751 Fountain Avenue, Los Angeles 29 (Henstell).

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1. Gardner, F. H., and Diamond, L. K.: Auto erythrocyte sensitization: A form of purpura producing painful bruising following auto-sensitization to red blood cells in certain women, Blood, 10:675-690, 1955.

2. Whitfield, A.: Some points in the etiology of skin diseases, Lancet, 2:122, 1921.

California
MEDICINE

For information on preparation of manuscript, see advertising page 2

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EDITORIAL

Industrial Medical Fees

The first of this month the physicians of California began receiving increased fees for treating patients injured in industrial accidents. While most of the items in the industrial fee schedule will remain unchanged, several increases have been approved by the Industrial Accident Commission, principally those dealing with visits in the home, hospital or office.

In addition, several other items have been reworded or clarified to remove ambiguous interpretations.

Copies of the new industrial schedule have been mailed to all C.M.A. members. The insurance industry is supplying its members with additional copies, and other groups are looking out for their own copies. In all, about 30,000 copies have been or soon will be in the hands of physicians, insurance agents and other interested parties throughout the state.

Adoption of the new schedule marks the third upward revision in industrial medical and surgical fees in the past seven years. The former schedule went into effect in the fall of 1954 and the one previous to that became effective late in 1950.

In addition to representing the third fee adjustment in seven years, the new schedule shows the result of some long and arduous committee work in the C.M.A. and the acceptance by the Industrial Accident Commission and the insurance carriers of the principle of periodic reopening of this subject as a means of keeping the schedule up to date.

Prior to the adjustments made in 1950, the course of industrial medical and surgical fees in California presented a rather sorry history. The original schedule was made up in 1912, when the average wage of the workmen covered by the then new industrial insurance laws was estimated at $1,000 a year. On that basis, the fee for a follow-up office visit was set at $1, that being the amount estimated as what the physician would expect to receive from a patient with the same annual income.

In 1921, when wages had risen, the follow-up office visit fee was raised to $1.25, still on the same theory of ability to pay.

Thereafter the fee schedule remained untouched until 1941, when the California Medical Association asked the Industrial Accident Commission to increase fees in the entire schedule. The Commission, at that time a three-man group, held one or two public hearings and took the application under advisement. That procedure is generally enough to kill such an application but the commission went one step further and appointed a ten-man "study committee" which was called upon to look into the entire subject of medical and surgical fees and to bring recommendations back to the commission.

The study committee remained in office for more than four years, during which time it held numerous meetings, all devoted to philosophical discussions of how medical and surgical fees for injured workmen could best be determined. Finally, in 1946, an increased fee schedule was adopted by the commission, the first formal increase in 25 years. This supplanted an increase of 15 per cent which the insurance carriers had voluntarily approved and paid during the war years. While the voluntary increase was welcome to the medical profession, it was adopted on a basis where the carriers had, at all times, the right to withdraw it. The official 1946 fee schedule did away with the wartime voluntary increase and put the fee schedule on a basis where it commanded the official recognition of insurance carriers, physicians and state officials alike.

An unofficial part of the 1946 fee schedule revision was the agreement between all parties that the entire schedule should be subject to review at biennial periods. This agreement was not written into the schedule or into the official records of the Industrial Accident Commission but it was thoroughly understood by all who participated in the study committee deliberations.

When two years had elapsed after adoption of the 1946 fee schedule revision, there was great reluctance on the part of all but the physicians to reopen the matter. However, the C.M.A. did secure a reopening by filing an application with the Commission for a reconsideration of specified fees. Following long hearings and much discussion, the 1950 version of the schedule emerged as an official document of the commission.

Then followed the 1954 schedule, based upon a specific act of the state Legislature which gave the commission detailed authority to promulgate a fee schedule and to use it as a basis for determining the fairness of medical and surgical fees. This act overcame an objection previously made by commission members that they had no specific legal authority to set medical and surgical fees. Under that objection, fee schedules were approved by the commission only when they represented a joint agreement between the medical profession and the insurance carriers.

The adoption of the new 1957 schedule thus marks the second time that the Industrial Accident Commission has adopted a fee schedule on its own initiative, following public hearings. It also marks the second time that recognition has been given to the 1946 informal agreement relative to reopening the schedule at two-year intervals.

The Committee on Fees, a subcommittee of the Commission on Medical Services, merits the thanks of the entire medical profession for its skilful handling of the fee schedule reopening and its successful conclusion of its case. By its actions the fees for medical and surgical services in industrial accident cases have been brought closer to the norm for general medical and surgical fees in California. Likewise, it is obvious that many physicians who have heretofore avoided industrial cases because of the low level of fees will now see their way clear to accept these cases and provide the services necessary.

The committee is also due our thanks for staying with the problem and securing a periodic reopening of the industrial fee schedule. With such reopenings, it is apparent that industrial fees may be kept in consonance with the economy of the state and in balance with the fees normally expected from the general population. The profession will watch with interest for future considerations on these fees, in the knowledge that the principles now established may be called upon in the years to come.

Letters to the Editor . . .

September 2, 1957

Dear Doctor Wilbur:

After reading the September *Newsletter*, I feel constrained to write my views to you on the question of relations between organized medicine and organized labor. To begin with, the two types of organizations are entirely different, as is readily apparent when one compares the "Four Basic Principles" set forth in the Letter, showing the relations between our organization and its members, with the high-handed, dictatorial manner in which labor unions order their members.

I contend that because of this difference our organization should not negotiate with labor unions at all about anything. Already we are more and more, as individual practitioners, having to deal with and through union offices in caring for our patients, whether for work-connected or other ailments being treated. The thing that this trend will lead to is easy to foresee and too fearful to contemplate. Are we not quite united behind the idea of prepaid medical care based upon the insurance principle, while the unions state unequivocally that they are "unalterably opposed to the insurance principle?" And do not insurance people, with their greater knowledge of the workings of these plans agree with us, that first-dollar coverage is both impractical and uneconomic? Therefore, why should we become involved with unions to our detriment and that of our patients?

As a voluntary organization dedicated to professional betterment and public service, we do not take any stand on political issues. Neither should we feel we have to recognize labor unions just because our government does. It even recognizes Russia!

Yours,

Arthur A. Mickel, M.D.

California MEDICAL ASSOCIATION

NOTICES & REPORTS

Executive Committee Minutes

Tentative Draft: Minutes of the 265th Meeting of the Executive Committee, San Francisco, Sir Francis Drake Hotel, August 14, 1957.

The meeting was called to order by Chairman Heron in the Cypress Room of the Sir Francis Drake Hotel. San Francisco. on Wednesday, August 14, 1957, at 4:00 p.m.

Roll Call:

Present were President MacDonald, President-Elect West, Council Chairman Lum, Speaker Doyle, Auditing Committee Chairman Heron, Secretary Daniels and Editor Wilbur. A quorum present and acting.

Present by invitation were Messrs. Hunton and Thomas of C.M.A. staff and Doctors Francis J. Cox and Joseph F. Sadusk, Jr.

1. *Membership:*

(a) On motion duly made and seconded, 46 delinquent members whose dues had been received since the preceding Council meeting were voted reinstatement.

(b) On motion duly made and seconded in each instance, six applicants were elected to Associate membership. These were: Forest C. Krawcaw, Elmer J. Shabart, Alameda-Contra Costa County; Vittorio G. Arcadi, San Luis Obispo County; William K. Bellew. Santa Clara County; George Northrup, Santa Cruz County, and A. E. Hoctor, Ventura County.

2. *Survey of Association:*

Discussion was held on proposals submitted by two business management firms for a survey of the Association's office and structure. It was agreed to seek a proposal from a third firm and to ask one of the first two to broaden the scope of its proposal.

Mr. Hunton reported that the Association has just been able to secure a little additional office space but that further expansion was impossible in the foreseeable future. At the same time, another professional organization is offering its property for sale due to its own need for expansion. Mr. Hunton was instructed to secure further details about the available property so that the Council might consider this possibility.

3. *Commission and Committee Appointments:*

(a) On motion duly made and seconded, it was voted to suggest to the Council that Doctor H. Gordon MacLean be named chairman of the Commission on Medical Services for the balance of the year, to succeed the late Hollis L. Carey.

(b) On motion duly made and seconded, it was voted to suggest to the Council the appointment of Doctor Omer W. Wheeler as a member of the Committee on State Medical Services.

4. *Blood Banks:*

Doctor MacDonald reported that there was some dissatisfaction with some blood banks over their policy of discouraging replacement of blood drawn and that possible public relations repercussions might result from this policy. It was agreed to ask Doctor Andrew M. Henderson, Jr., chairman of the Committee on Blood Banks, to present this matter to the Council at its next meeting.

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5. *Student Health Services:*

Doctor MacDonald reported that the Sacramento Junior College is planning the start of a student health service, using employed physicians. He urged that C.P.S. be asked to cooperate in providing a free choice of physician service in these schools.

6. *Physicians' Benevolence Corporation:*

Doctor MacDonald reported that some members of the Woman's Auxiliary were expressing doubts about the functioning of the Physicians' Benevolence Corp. and that he had been asked to report to the fall Board meeting of the auxiliary on this subject. It was agreed that an article should be prepared for publication in the *Courier* to explain the entire operation.

7. *Tuberculin Testing:*

Doctor Daniels reported that the California Tuberculosis and Health Association, in conjunction with the U. S. Public Health Service, was planning a tuberculin testing study, with San Diego County selected as the test area, and was seeking C.M.A. approval. On motion duly made and seconded, it was voted to approve this study, provided it met with the approval of the county society.

8. *Physicians and Schools:*

Doctor Daniels reported that the A.M.A. Conference on Physicians and Schools would be held in Highland Park, Illinois, in the fall. He asked that the Association plan to send Doctor Oliver Byrd of Stanford, Mr. Thomas and Doctor Daniels to this meeting. On motion duly made and seconded, it was voted to follow this suggestion.

9. *Medical Review and Advisory Board:*

Doctor Joseph F. Sadusk, Jr., chairman of the Medical Review and Advisory Board, gave a progress report on the board's activities and stated that a meeting would be held on September 13 and a report made to the Council the following day.

Adjournment:

There being no further business to come before it, the meeting was adjourned at 9:25 p.m.

IVAN C. HERON, M.D., *Chairman*
ALBERT C. DANIELS, M.D., *Secretary*

Postgraduate Education Courses for 1958 Annual Session

AN INNOVATION in C.M.A. meetings is being planned for the 1958 Annual Session. It is proposed to offer three postgraduate education courses of 9 hours each in connection with the scientific meetings. They will be given from 9 a.m. until noon, Monday, Tuesday and Wednesday, April 28 to 30. It is expected that official credit would be given for these courses.

As now planned, each of the three medical schools in Southern California would put on a course of three hours daily for the four days of the meeting.

Present plans call for University of Southern California to handle a course on liver diseases. U.C.L.A. Medical School would present a course on abdominal pain and College of Medical Evangelists would take charge of a series on management of trauma.

It is planned to make an admission charge for these courses, although the full details remain to be worked out.

Further announcements will be made when plans are completed.

In Memoriam

BARNHILL, JOHN R. Died in Modesto, August 27, 1957, aged 42, of injuries received in an automobile accident. Graduate of the University of Kansas School of Medicine, Lawrence-Kansas City, 1940. Licensed in California in 1945. Doctor Barnhill was a member of the Stanislaus County Medical Society.

✣

BOGUE, HOMER A. Died in Ontario, August 7, 1957, aged 96. Graduate of the University of Vermont College of Medicine, Burlington, 1886. Licensed in California in 1919. Doctor Bogue was a retired member of the San Bernardino County Medical Society and the California Medical Association, and an associate member of the American Medical Association.

✣

BUNNELL, STERLING. Died in San Francisco, August 20, 1957, aged 75, of heart disease. Graduate of the University of California School of Medicine, Berkeley-San Francisco, 1908. Licensed in California in 1908. Doctor Bunnell was a member of the San Francisco Medical Society.

✣

BURG, FRED A. Died in Fresno, August 8, 1957, aged 41, of coronary occlusion. Graduate of the University of Oklahoma School of Medicine, Oklahoma City, 1939. Licensed in California in 1940. Doctor Burg was a member of the Fresno County Medical Society.

✣

CRAVEN, LAWRENCE L. Died in Los Angeles, August 18, 1957, aged 74, of angina pectoris. Graduate of the University of Minnesota Medical School, Minneapolis, 1914. Licensed in California in 1924. Doctor Craven was a member of the Los Angeles County Medical Association.

✣

DALPE, WILLIAM GUY. Died August 8, 1957, aged 68. Graduate of McGill University Faculty of Medicine, Montreal, Quebec, Canada, 1914. Licensed in California in 1929. Doctor Dalpe was a member of the Los Angeles County Medical Association.

✣

DEVIGNE, HARRY C. Died in Santa Barbara, August 7, 1957, aged 81. Graduate of Hahnemann Medical College of the Pacific, San Francisco, 1904. Licensed in California in 1919. Doctor DeVigne was a retired member of the Los Angeles County Medical Association and the California Medical Association, and an associate member of the American Medical Association.

✣

GRANGER, ARTHUR STANLEY. Died in Los Angeles, August 14, 1957, aged 76, of injuries received in a traffic collision. Graduate of Rush Medical College, Chicago, 1909. Licensed in California in 1911. Doctor Granger was a member of the Los Angeles County Medical Association.

✣

HORST, WALTER W. Died in Long Beach, August 15, 1957, aged 68, of cerebral thrombosis. Graduate of Washington University School of Medicine, St. Louis, Missouri, 1913. Licensed in California in 1926. Doctor Horst was a member of the Los Angeles County Medical Association.

✣

NAUGHTON, JOHN P. Died in Los Angeles, August 7, 1957, aged 89. Graduate of the College of Physicians and Surgeons of Baltimore, Maryland, 1896. Licensed in California in 1899. Doctor Naughton was a retired member of the Los Angeles County Medical Association and the California Medical Association, and an associate member of the American Medical Association.

✣

SHEPARD, JOHN HUNT. Died in San Jose, September 4, 1957, aged 78. Graduate of Rush Medical College, Chicago, 1904. Licensed in California in 1920. Doctor Shepard was a retired member of the Santa Clara County Medical Society and the California Medical Association, and an associate member of the American Medical Association.

✣

SMOLT, LILLIAN POLHAMUS. Died June 13, 1957, aged 55. Graduate of Rush Medical College, Chicago, 1928. Licensed in California in 1928. Doctor Smolt was a retired member of the Ventura County Medical Society and the California Medical Association, and an associate member of the American Medical Association.

✣

YOUNG, EDITH F. Died in San Francisco, August 17, 1957, aged 61. Graduate of the University of California School of Medicine, Berkeley-San Francisco, 1928. Licensed in California in 1928. Doctor Young was a member of the Yuba-Sutter-Colusa Medical Society.

CALIFORNIA MEDICAL ASSOCIATION

Annual Meeting

Ambassador Hotel

LOS ANGELES

April 27 - April 30, 1958

Papers for Presentation

If you have a paper that you would like to have considered for presentation, it should be submitted *to the appropriate section secretary* (see list on this page) no later than November 1, 1957.

Scientific Exhibits

Space is available for scientific exhibits. If you would like to present an exhibit, please write immediately to the office of the California Medical Association, 450 Sutter Street, San Francisco 8, for application forms. To be given consideration by the Committee on Scientific Work, the forms, completely filled out, must be in the office of the California Medical Association no later than December 1, 1957. (No exhibit shown in 1957, and no individual who had an exhibit at the 1957 session, will be eligible until 1959.)

SCIENTIFIC PAPERS
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Stanford University Hospitals, San Francisco 15

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O'Connor Hospital, San Jose 14

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RADIOLOGY . . . . **Nathan M. Spishakoff**
405 North Bedford Drive, Beverly Hills

UROLOGY . . . . **Ray C. Atkinson**
401 29th Street, Oakland 9

WOMAN'S AUXILIARY
TO THE CALIFORNIA MEDICAL ASSOCIATION

Public Relations

THE PRIMARY purpose of an Auxiliary's public relations program is to help the public at large understand the functions, policies and aims of the medical profession. One phase of the work delegated to us is to promote educational and service activities relating to health and medical care. Another is to make each Auxiliary member aware of her responsibility as an ambassador of good will for the medical profession in her daily contacts. Thus, collectively and individually, the Auxiliary helps mold public opinion for the improvement of the health of the people and the advancement of medical service.

There is no doubt that the heart of the public relations program is planning. It is a broad field. It isn't something which can be accomplished by a single program or project; it's "everything we do, or fail to do: our every act, and word and attitude which creates an impression on the public." It takes all of us working together to be most effective in accomplishing this end.

California, with the largest Auxiliary in the United States, has contributed its share to the long list of Auxiliary accomplishments in the field of public relations. Nurse recruitment is by far our most effective public relations project. The auxiliaries sponsor over ninety Future Nurse Clubs, an excellent record when one realizes that there are 154 such clubs in California, 138 of them receiving aid from our nurse recruitment program. This past year alone 228 nursing scholarships were given.

In the year 1956-57 the Auxiliary contributed $7,639.68 to the American Medical Education Foundation. Twenty-four auxiliaries reported 2,437 renewals to *Today's Health* and 628 new subscriptions —3,065 subscriptions in all. Sixteen counties are active in Civil Defense. We have an active and alert legislative program. Yes, all this is public relations.

This year the National Auxiliary hopes that each state and county Auxiliary will (1) review its objectives and the relation of its activities to it, (2) build a closer working relationship with its medical society, through an orientation program on the objectives of the A.M.A. and the Auxiliary and through the partnership approach on public service projects; and (3) explore and try out some of the newer methods for understanding how groups work and solve problems together.

Perhaps the best public relations for the medical profession is done when physicians' wives serve on health boards in their own community. Although a wife so serving may not be directly representing the Auxiliary, she nevertheless is a liaison between the two groups. Each physician's wife is a power in herself in promoting public relations. It can truthfully be said that public relations is every member's responsibility, in what she does with her spare time, how she meets people or answers the telephone, in conversation among friends and in her work as a citizen, church or club member. All of these have a direct bearing on promoting understanding between the medical profession and the public.

The program and projects of the Auxiliary are of no value unless their influence reaches the local level. Our contribution to the health of the community creates our public relations.

As we start our Auxiliary year for 1957-58 we should strive to remember that we are a working community service group, that we can do our most productive work under the direct guidance of the Medical Association, and that we must continually reevaluate our accomplishments to help us judge whether we are carrying out our objectives. We concur with our national president that "health is a joint endeavor," and we shall strive by the means outlined above to make our organization of service to society and thus to the medical profession.

MRS. LEONARD D. OFFIELD
President, Woman's Auxiliary to the California Medical Association

NEWS & NOTES

NATIONAL · STATE · COUNTY

ALAMEDA

Dr. Alvin R. Leonard, formerly for eight years assistant public health director for San Diego County, last month became public health director for the City of Berkeley. He will also serve as clinical professor of public health at the University of California School of Public Health.

His resignation from the San Diego department was accepted with expression of regret by Dr. J. B. Askew, director of the department.

FRESNO

The annual meeting of the **California School Health Association** will be held November 2 and 3 at the Hacienda Motel in Fresno. The meetings will be open to administrators, teachers, school health personnel, members of local public health departments, presidents and health directors of P.-T.A. districts, members of voluntary health agencies and other persons interested.

LOS ANGELES

A second contribution, this one for $42,986, from the estate of the late Cora M. Hodkinson to the **Cancer Detection Clinic** of Los Angeles was accepted last month by the Cancer Prevention Society, which sponsors the clinic. Earlier a contribution of $50,000 was received. Mrs. Hodkinson, who died in 1954, was the widow of a physician, **Dr. William A. Hodkinson,** who died in 1923.

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A four-day meeting of the **Western Division of the American Psychiatric Association** is to be held in Los Angeles in conjunction with the West Coast Psychoanalytic Societies, November 20 through 24.

Papers to be presented at the meeting, which will be held at the Hotel Statler, will be grouped into the following categories: Group Psychotherapy, Experimental Psychiatry, Psychosomatic Medicine, Hospitals, Drugs, Individual Psychotherapy, Social Psychiatry, Child Psychiatry, and Psychoanalysis.

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Dr. Clarence W. Dail, San Gabriel, was elected vice-president of the American Academy of Physical Medicine and Rehabilitation at the meeting of the organization last month in Los Angeles. The newly elected president is Dr. George D. Wilson of Asheville, N. C.

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Grants totaling $25,900 were made recently to the **Reiss-Davis Clinic for Child Guidance,** Los Angeles by the U. S. Public Health Service. Twelve thousand dollars of the total will be used in the training of four residents in child psychiatry from the Veterans Administration Hospital at Brentwood and another $12,000 will be used to give field training to four graduates in clinical psychology at University of Southern California and University of California at Los Angeles.

GENERAL

Representatives of mental health committees of all state medical associations will gather in Chicago on November 22 and 23 for a conference sponsored by the American Medical Association, the fourth annual meeting of this type.

Topics for discussion have been announced as including (1) "The Role of the General Practitioner in Relation to the Specific Psychiatric Case," (2) "The Blue Cross-Blue Shield Plans for the Psychiatric Patient," (3) "Relationship of the Psychiatrist in Private Practice to the General Hospital in His Community," and (4) "Psychiatric and Related Mental Health Problems in Industry."

The California Medical Association will be represented at this conference by the chairman of the Committee on Mental Health, Dr. Matthew Ross of Beverly Hills. Dr. Ross is seeking the views of all C.M.A. members on the topics listed for discussion and would appreciate hearing from any member who has material or ideas suitable for presentation at this conference. Communications should be sent to him at 360 North Bedford Drive, Beverly Hills.

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Eight grants in aid of cancer research totaling $96,334, divided among projects by nine California physicians, were announced recently by the California Division of the American Cancer Society.

Dr. Daniel Mazia, University of California, was awarded $20,245 to study cell growth and reproduction. A grant of $18,280 was made to Dr. K. B. DeOme and Dr. Howard A. Bern for study of precancerous conditions of the breast in mice. Also at U. C. Dr. Harold Tarver received $10,007 to study the breakdown of protein and an award of $4,091 for research on amino acids was made to Dr. John B. Neilands.

Two Stanford University research men were given grants. Dr. Hubert S. Loring got $12,621 to study trace metals in viruses, and Dr. Howard H. Pattee got $9,609 to experiment with x-ray microscopy of biological material.

Dr. B. L. Freedlander of Mount Zion Hospital, San Francisco, was awarded $7,881 to test chemical compounds that may slow down or halt cancer.

Dr. Albert V. Baez of the University of Redlands received $8,600 for microchemical analysis of biological specimens. Dr. Benjamin Stimmel of the Rees-Stealy Clinic in San Diego was given $5,000 to study hormonal patterns.

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The Arizona Division of the American Cancer Society, in collaboration with the Arizona Medical Association, will again be host at cancer seminars to be held in Tucson, January 25 to 27, 1958, at the Tucson-Bagdad Inn. The meeting will include lectures by Dr. Arthur Purdy Stout, pathologist of New York City, Dr. Ross Golden, radiologist of Los Angeles, Dr. Axel Arneson, gynecologist of St. Louis, Dr. Ian Macdonald, surgeon of Los Angeles, Dr. Barrett Brown, plastic surgeon of St. Louis, Dr. Cornelius Lehman, dermatologist of San Antonio, Mr. Dale Trout, physicist of General Electric Co., Milwaukee, and Dr. Harold S. Diehl, the new medical and research director of the American Cancer Society.

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The American Foundation for Allergic Diseases is offering **postdoctoral fellowships** of two years each in research and clinical allergy. The stipend for the first year is $4,500 and for the second year $4,750, plus allowance for laboratory and travel expenses.

Candidates must be graduates of approved medical schools and must have completed one or two years of the graduate training required as a preliminary to certification by the Boards of Internal Medicine or Pediatrics; they are to divide their time between research and clinical training, and in the second year 10 or 15 per cent of a candidate's time might be devoted to teaching. The respective institutions have taken the necessary steps to have this training credited toward the sub-specialty in allergy by the Board of Internal Medicine and the Board of Pediatrics.

Requests for applications should be sent directly to one of the following, in whose field the candidate would like to work: Dr. Colin M. MacLeod, professor of research medicine, University of Pennsylvania, 820 Maloney Clinic, 36th and Spruce Streets, Philadelphia 4; or Dr. Herman N. Eisen, professor of medicine (dermatology), Washington University School of Medicine, 600 South Kingshighway, Saint Louis 10.

Applications should be filed no later than December 15.

POSTGRADUATE EDUCATION NOTICES

THIS BULLETIN of the dates of postgraduate education programs and the meetings of various medical organizations in California is supplied by the Committee on Postgraduate Activities of the California Medical Association. In order that they may be listed here, please send communications relating to your future medical or surgical programs to: Mrs. Margaret H. Griffith, Director, Postgraduate Activities, California Medical Association, 417 South Hill Street, Los Angeles 13.

UNIVERSITY OF CALIFORNIA AT LOS ANGELES

Dermatology. Friday and Saturday, October 25 and 26. Sixteen hours. Fee: $50.00 (includes dinner). Guest speakers: Richard L. Sutton, Jr., M.D., University of Kansas; Rudolph L. Baer, M.D., New York University Postgraduate Medical School; Walter B. Shelley, M.D., University of Pennsylvania.

Aviation Medicine. Thursday, Friday and Saturday, October 31, November 1 and 2. Twenty-one hours. Fee: $65.00 (includes 1 lunch and 1 dinner).

Removal of Foreign Bodies in Lung and Bronchi. Limited to 12 students. Saturday and Sunday, November 2 and 3. Nine hours. Fee: $100.00.

Photomicrography. Mondays, November 4 through December 9. Twelve hours. Fee: $30.00.

Ear, Nose and Throat. Friday and Saturday, November 8 and 9. Twelve hours.†

Surgical Anatomy. Mondays, November 18 through February 3. Twenty hours. Fee: $80.00.

Arthritis and Rheumatism. Wednesday, January 15, 1958. Nine hours. Fee: $30.00.

Contact: Thomas H. Sternberg, M.D., Assistant Dean for Postgraduate Medical Education, U.C.L.A., Los Angeles 24. BRadshaw 2-8911, Ext. 202.

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

Course in General Surgery. Monday to Friday, October 21 to 25. Thirty-five hours. Fee: $75.00.

Tumors of Childhood, Children's Hospital. Saturday, November 9. Seven hours. Fee: $12.50.

Symposium in Cardiovascular Disease. Santa Rosa, Wednesday, November 20. Seven hours. Fee: $15.00.

Ocular Manifestations of Systemic Disease. Wednesday to Saturday, December 4 to 7. 24 hours.†

Physical Medicine. Friday and Saturday, December 6 and 7. Fourteen hours.†

Clinical Cardiovascular Physiology. Friday to Sunday, December 13 to 15. Fourteen hours. Fee: $30.00.

Ophthalmoscopy in General Practice and Pediatrics. Wednesday and Thursday, January 15 and 16, 1958. Fourteen hours.†

Postgraduate Dermatology Clinic. Friday and Saturday, January 17 and 18, 1958. Fourteen hours.†

Children's Hospital Medical Seminars. Saturdays, January 25 and March 29, 1958.*

Patho-Physiology of the Gastrointestinal Tract. Monday and Tuesday, January 27 and 28, 1958. Fourteen hours.†

Course for Physicians in General Practice. Monday through Friday, February 24 to 28, 1958.*

Contact: Seymour M. Farber, M.D., Head, Postgraduate Instruction, Office of Medical Extension, University of California Medical Center, San Francisco 22. MOntrose 4-3600, Ext. 665.

STANFORD UNIVERSITY SCHOOL OF MEDICINE

Morning Clinical Conferences, each Monday, Room 515. *Contact:* D. H. Pischel, M.D., Professor, Division of Ophthalmology, Stanford University School of Medicine, 2398 Sacramento St., San Francisco 15.

UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES

Cardiac Resuscitation. Sponsored by the Los Angeles County Heart Association each Wednesday throughout the year, 4 to 6 p.m. Residents admitted without fee. Tuition for all other physicians: $30.00. (Each session all-inclusive.)

Basic Home Course in Electrocardiography. One year Postgraduate Series, electrocardiogram interpretation by mail. Physicians may register at any time and receive all 52 issues. Fifty-two weeks. Fee: $100.00.

Advance Home Course in Electrocardiography. One year postgraduate series, electrocardiogram interpretation by mail. Fifty-two issues: $85.00. Physicians may register at any time.

Conferences in Clinical Endocrinology. Hotel Statler, Los Angeles, November 7 to 9. Fee: $67.00.

Contact: Phil R. Manning, M.D., Director, Postgraduate Division, University of Southern California School of Medicine, 2025 Zonal Avenue, Los Angeles 33. CApital 5-1511.

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†Fee to be announced.

*Hours and Fees to be announced.

COLLEGE OF MEDICAL EVANGELISTS

Vue-Vox Postgraduate Refresher Courses. Courses are made up of four or more half-hour lectures each, recorded on hi-fi magnetic tape and illustrated by 35-mm. filmstrips or slides in full color, and adapted for use on any standard tape recorder and filmstrip or slide projector, automatic or manual.

Contact: Paul D. Foster, M.D., chairman, Committee on Audio-Visual Courses, College of Medical Evangelists School of Medicine, 316 North Bailey St., Los Angeles 33.

CALIFORNIA MEDICAL ASSOCIATION POSTGRADUATE COURSES

POSTGRADUATE INSTITUTES—1958

San Bernardino, Riverside and Orange Counties, in cooperation with College of Medical Evangelists, Arrowhead Springs Hotel, San Bernardino County, February 13 and 14, 1958. Chairman: Elmer O. Carlson, M.D., 756 N. Euclid Ave., Ontario.

West Coast Counties, in cooperation with UCLA School of Medicine, Golden Bough Theater and La Playa Hotel, Carmel, March 6 and 7, 1958. Chairman: Howard C. Miles, M.D., 535 E. Romie Lane, Salinas.

San Joaquin Valley Counties, in cooperation with Stanford University School of Medicine, Hotel Californian, Fresno, March 20 and 21, 1958. Chairman: Henry L. Tiesche, M.D., 1759 Fulton St., Fresno.

North Coast Counties, in cooperation with USC School of Medicine, Hoberg's Resort, Lake County, April 10, 11 and 12, 1958. Chairman: Alfred A. Thurlow, Jr., M.D., 185 Sotoyome Ave., Santa Rosa.

Sacramento Valley Counties, in cooperation with University of California School of Medicine, San Francisco, Tahoe Tavern, Lake Tahoe, June 19 and 20, 1958. Chairman: Robert H. Quillinan, M.D., 616 Alhambra Blvd., Sacramento.

Contact: One of the chairmen listed above, or Mrs. Margaret H. Griffith, Director, Postgraduate Activities, California Medical Association, 417 So. Hill Street, Los Angeles 13. Madison 6-0683.

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Audio Digest Foundation, a nonprofit subsidiary of the C.M.A., now offers (on a subscription basis) a series of hour-long tape recordings designed to keep the physician abreast of current happenings in his particular field. Composed of practice-useful abstracts from 600 leading journals, with short lectures and editorial comments from prominent physicians, Audio Digest offers programs covering general practice, surgery, internal medicine, obstetrics and gynecology, and pediatrics.

Contact: Claron L. Oakley, editor, 1919 Wilshire Blvd., Los Angeles 57.

Medical Dates Bulletin

OCTOBER MEETINGS

Kaiser Foundation Hospitals, Northern California Symposium on Cardiovascular and Renal Disease, October 18, 8 p.m.; October 19, 9 a.m. to 5 p.m., Hotel Claremont, Berkeley. *Contact:* Lena Milick, executive secretary, Central Staff Education Committee, Kaiser Foundation Hospital, Broadway and MacArthur Boulevard, Oakland 11.

Western Orthopedic Association Annual Meeting, October 20 to 24, Santa Barbara. *Contact:* Walter Scott, M.D., secretary, 1321 N. Vermont Ave., Los Angeles 27.

Santa Barbara County Heart Association and Santa Barbara County TB and Health Association Chest Disease Symposium, October 21, 3 p.m. to 10 p.m., Montecito Country Club. *Contact:* Frank R. Harader, executive director, 20 W. Sola St., Santa Barbara.

State Board of Medical Examiners Written Examination, October 21 to 24, Sacramento.‡

California Conference of Local Health Officers Semi-Annual Meeting, October 22 to 24, San Francisco. *Contact:* Donald G. Davy, M.D., State Dept. of Public Health, 2151 Berkeley Way, Berkeley.

California Society of Internal Medicine Annual Meeting, October 25 to 27, El Mirador, Palm Springs. *Contact:* Mrs. Mildred B. Coleman, executive secretary, 350 Post St., San Francisco 8.

California Society Internal Medicine Scientific Session, **The Thyroid.** El Mirador, Palm Springs, 2 to 5 p.m., October 26. *Contact:* William L. Cover, M.D., 575 Fifth St., San Bernardino.

NOVEMBER MEETINGS

California Academy of General Practice Ninth Annual Scientific Assembly, November 3 to 6, Hotel Statler, Los Angeles. *Contact:* William W. Rogers, executive secretary, 461 Market Street, San Francisco.

Pan-Pacific Surgical Association Seventh Congress, November 14 to 22, Honolulu, Hawaii. *Contact:* F. J. Pinkerton, M.D., Director General of Pan-Pacific Surgical Association, Room 230, Young Bldg., Honolulu, Hawaii.

Society Graduate Internists Annual Symposium, November 15 to 17, Statler Hotel and Los Angeles County General Hospital. *Contact:* Wallace Frasher, M.D., secretary, 1200 N. State St., Los Angeles.

DECEMBER MEETINGS

American College of Chest Physicians Postgraduate Course on Diseases of the Chest, Ambassador Hotel, Los Angeles, December 9 to 13. *Contact:* Alfred Goldman, M.D., chairman, 416 N. Bedford Drive., Beverly Hills.

1958 MEETINGS

Orange County Heart Association 1958 Annual Symposium on Heart Disease, January 25, all day, Disneyland Hotel, Anaheim. *Contact:* Howard G. Buswell, executive director, P. O. Box 1704, Santa Ana.

Colorado State Medical Society Midwinter Clinical Session, February 18 to 21, Shirley-Savoy Hotel, Denver. *Contact:* Harvey T. Sethman, executive secretary, 835 Republic Bldg., Denver 2.

International College of Surgeons 23rd Annual Congress of U. S. and Canadian Sections 11th Biennial International Congress, March 9 to 13, Hotel Ambassador, Los Angeles. *Contact:* J. M. de los Reyes, M.D., general chairman, 2010 Wilshire Blvd., Los Angeles 57.

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‡Contact: Louis E. Jones, M.D., 1020 N Street, Sacramento 14.

CALIFORNIA SOCIETY OF PLASTIC SURGEONS Annual Meeting, March 20 to 22, Del Monte Lodge, Del Monte, California. *Contact:* Benjamin F. Edwards, M.D., 2200 Santa Monica Blvd., Santa Monica.

VALLEY CHILDREN'S HOSPITAL Spring Clinics, April 11 and 12. Roosevelt High School Auditorium, Fresno. *Contact:* Valley Children's Hospital, Fresno.

AMERICAN COLLEGE OF OBSTETRICIANS AND GYNECOLOGISTS, April 21 to 23, Los Angeles. *Contact:* John C. Ullery, M.D., secretary, 15 South Clark St., Chicago 3.

CALIFORNIA MEDICAL ASSOCIATION Annual Meeting, Ambassador Hotel, Los Angeles, April 27 to 30. *Contact:* John Hunton, executive secretary, 450 Sutter St., San Francisco 8, or Ed Clancy, director, Public Relations, 417 South Hill St., Los Angeles 13.

SOUTH DAKOTA MEDICAL ASSOCIATION Annual Meeting, May 17 to 20, Huron, South Dakota. *Contact:* John C. Foster, executive secretary, 300 First National Bank Building, Sioux Falls, S. D.

WESTERN BRANCH, AMERICAN PUBLIC HEALTH ASSOCIATION Annual Meeting with Canadian Public Health Association, May 18 to 23, Vancouver, B. C. *Contact:* Mrs. L. Amy Darter, secretary-treasurer, 2151 Berkeley Way, Berkeley 4.

AMERICAN LARYNGOLOGICAL ASSOCIATION, May 19 to 20, San Francisco. *Contact:* James H. Maxwell, M.D., secretary, University Hospital, Ann Arbor, Michigan.

AMERICAN BRONCHO-ESOPHAGOLOGICAL ASSOCIATION, May 21 to 23, San Francisco. *Contact:* F. Johnson Putney, M.D., secretary, 1719 Rittenhouse Square, Philadelphia, Pa.

CALIFORNIA HEART ASSOCIATION Annual Meeting, Scientific Session and Directors Meeting, Hacienda Motel, Fresno, May 23 to 25. *Contact:* J. Keith Thwaites, executive director, 1428 Bush St., San Francisco.

AMERICAN COLLEGE OF CHEST PHYSICIANS 24th Annual Meeting, June 18 to 22, San Francisco. *Contact:* Mr. Murray Kornfeld, executive director, 112 East Chestnut St., Chicago 11, Ill.

AMERICAN MEDICAL ASSOCIATION Annual Meeting, June 23 to 27, San Francisco. *Contact:* American Medical Association, 535 North Dearborn St., Chicago 10.

AMERICAN PROCTOLOGIC SOCIETY, June 29 to July 3, Los Angeles. *Contact:* Norman D. Nigro, M.D., secretary, 10 Peterboro St., Detroit 1, Michigan.

INFORMATION

California's New Program of Aid For Totally and Permanently Disabled Persons

DONALD K. FREEDMAN, M.D., San Francisco

A PROGRAM of Aid to the Needy Disabled (ATD) was enacted by the 1957 session of the California Legislature and signed by the Governor. It became effective October 1, 1957. It is estimated that 13,000 persons will be receiving aid under this law (S.B. 1509) within the first nine months of operation.

This fourth category of public assistance (Title XIV of the Social Security Act), under which federal funds are available to the state, was passed by Congress in 1950. It provides financial aid to persons in need as a result of severe disability. It differs from other public assistance programs as it requires the state Department of Social Welfare, rather than each county, to make the final determination of disability in every case.

Nearly all other states and territories adopted a program of aid to the disabled in earlier years. In 1951, and in each subsequent session until 1957, the California State Legislature rejected bills intended to help this group of persons. For the first time, therefore, California will now be utilizing available Federal as well as state and county funds in caring for needy disabled persons. Heretofore, families of some disabled persons have received assistance under the Aid to Needy Children program, although the majority have been dependent upon limited county aid grants or the kindness of friends or relatives.

Under the new law in California, a needy disabled person is one who is "both permanently impaired and totally disabled." This means "suffering from a major physical or a major mental impairment, not a psychosis . . . [that] appears reasonably certain to continue throughout the lifetime of the individual without substantial improvement." Furthermore, he must require "constant and continuous care" which terms are defined as "bedfast, chairbound, or in need of physical assistance . . . or his mental or physical impairment makes continuous supervision essential."

Such wording limits this program to cases of extreme disability. This is assured by requiring that the definition of terms "be strictly construed." Nevertheless, it is provided that the Department of Social Welfare "shall encourage the rehabilitation or employment of the recipient" in those cases where it appears that with proper care and training the person may become wholly or partially self-supporting.

From the physician's viewpoint, the important factors affecting disability are the severity of the condition, its permanence, and the need for continuing care—medical, nursing or other. Patients will be asking their physicians for medical reports in elaboration of these points. These reports are required before a determination of disability is made. Information will be sought also on such aspects of the problem as medical history, positive physical findings, diagnoses, recommendations and an evaluation of the immediate and future effects upon the patient's daily activities.

"Psychosis" is a diagnosis that makes a patient ineligible under the ATD program. However, it refers primarily to severe mental disorders with extensive disorganization of personality. Others excluded are patients in a hospital for mental disease or tuberculosis, and inmates of public custodial institutions. The minimum age limit is 18 years, and the patient must be a citizen or in continuous residence in the United States since January 1, 1932. California residence is required for one year preceding the date of the application, and five years within the nine years preceding application.

Payment for medical examinations will be arranged by each county welfare department separately. The agency, however, may designate a physician, hospital, clinic or panel of physicians to perform these examinations in order to secure current medical findings. Consequently, the county medical society may wish to discuss such plans with the respective welfare agency. This has particular significance for physicians with severely disabled, private patients who may apply for aid under this program, since the full clinical picture is essential for the Department of Social Welfare. It has value also to the physician and his patient for two reasons: First, because a patient cannot be judged eligible for financial aid without a detailed report; and second, because additional services desired by the physician or his patient might be obtained if these needs are so reported. Such services may include securing walkers, wheelchairs, home nursing, haircuts, appliances and physical therapy.

Payment to physicians for providing medical treatment to disabled patients under ATD is not included

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Dr. Freedman is Area Medical Consultant, State of California Department of Social Welfare, San Francisco.

in the medical care fund of the state Department of Social Welfare. This arose not from discrimination against the ATD group but was due to the fact that the legislature passed the ATD bill too late in the session to include provision for medical care.

All medical reports will be reviewed by physicians. First, in each county welfare agency the medical consultant will evaluate them to determine whether the information is sufficiently complete to meet state requirements. In the interest of the patient, comprehensive medical findings are vital. Then, when adequately detailed, reports will be studied by practicing physicians serving part time on the state agency's medical review teams.

Social workers have the responsibility of conducting a thorough social evaluation in every case, so as to complement findings of the examining physician. In ATD, the determination of disability is not solely a medical one but depends upon social factors as well. Thus the patient's problems regarding such matters as bathing, toileting, ambulation and feeding may be fully known. Utilizing the findings of both physician and social worker, medical review teams established within the state Department of Social Welfare* will make the final determinations regarding permanency and totality of the disease or disability. Regulations require all review teams to follow a standard method of evaluating the facts in each case, so as to achieve uniformity statewide to the fullest extent possible. Some patients will be so thoroughly incapacitated that no further medical examination will be needed as far as eligibility for aid is concerned. Others will be followed at stated intervals to determine change in status of disability, while certain patients will be denied aid because of insufficient disability. These decisions will be reached by the teams after thorough study of the records.

Disability is a relative matter which may be viewed differently by different physicians. When considering such matters as permanence of a disability, seriousness of prognosis or chances for improvement in specific functions such as ambulation or self-care, variations in judgment are bound to occur. Nevertheless, review teams will be trained to exercise judgment based upon criteria utilized statewide. Thus, disability cases will range between two extremes, extending from complete immobilization in bed, the patient being unable to satisfy a single need or perform any function unaided, to full command of all functions and faculties despite the disability. For example, at one extreme a poliomyelitic patient in a respirator, and at the other a paraplegic person with his own car and job. Any condition short of complete immobilization modifies the absolute nature of the condition, yet many incapacitated patients although capable of a limited degree of self-care may nevertheless qualify as permanently disabled persons under ATD.

To the physician, whether in his office or in a hospital setting, this program provides a total medical-social evaluation of patients suffering with severely crippling disabilities. To the patient, it means that some will receive financial aid for the first time, despite many years of deprivation based upon a physical or mental defect. A growing number of patients should be enabled to achieve a greater amount of self-help services, of rehabilitation, of supervision, or of other needs such as drugs. Aid to the Disabled represents, therefore, a beginning attempt to alleviate some of the harmful and demoralizing effects upon the individual, the family, and society of disabled citizens, many of whom have been existing without ameliorative or restorative services. This program serves the physician and the community with an additional method of strengthening the individual and family, creating a barrier against social, physical and emotional disintegration resulting from disease or injury.

821 Market Street, San Francisco 3.

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*In San Francisco, Los Angeles and Sacramento.

THE PHYSICIAN'S *Bookshelf*

DISEASES OF THE NOSE, THROAT AND EAR—Tenth Edition—Howard Charles Ballenger, M.D., F.A.C.S., Professor Emeritus of the Department of Otolaryngology, and John Jacob Ballenger, B.S., M.S., M.D., Associate in the Department of Otolaryngology, both from Northwestern University Medical School. Lea & Febiger, Philadelphia, 1957. 968 pages, 550 illustrations and 11 plates, $17.50.

Like its predecessors, the tenth edition of this classic American text is most comprehensive and well illustrated. Divided into five sections: The Nose and Accessory Sinuses, The Pharynx and Fauces, The Larynx, The Ear, and Bronchology, Esophagology and Gastroscopy, the book is well organized and presents its material concisely and logically. The sections on surgery of the nasal septum and on bronchoesophagology are notably excellent.

The major defect of this new edition is its obsolescence. For the most part, the text is unchanged from previous editions, and is conspicuously uncontaminated by many of the important recent advances in otorhinolaryngology. Where revisions have been made, they are usually added to the old material. As an example of this, the section on stapes mobilization, an operation which has gained a very important place in otology in recent years, occupies only a portion of one page in this text. This is disturbing to the reader, since this volume still devotes long sections to archaic methods of medical and surgical therapy. Although these obsolete techniques are of great historical interest, they occupy a disproportionately large part of the book.

Despite these shortcomings, the tenth edition of Ballenger and Ballenger remains one of the foremost texts in otorhinolaryngology. This volume will be most useful to residents in ear, nose, and throat, and should be a valuable reference on this subject for physicians whose primary interests lie in other fields. Because of the inadequacy of the revisions, the purchase of this edition by physicians who already have this book in its eighth or ninth edition is not recommended.

Charles P. Lebo, M.D.

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THE PERSON BEHIND THE DISEASE—Julius Bauer, M.D., Clinical Professor of Medicine, College of Medical Evangelists, Grune & Stratton, New York, 1956, 136 pages, $3.50.

"The Person Behind the Disease" is a brilliant tour de force, in which a great clinician, investigator and teacher has brought together ideas from all his works, starting with his earliest quoted article: Zur Funktionspruefung des vegetativen Nervensystems. Deutsche Arch. klin. Med. 107:39, 1912, and ending with his penultimate revised book: Differential Diagnosis of Internal Diseases. Ed. 2, New York, Grune & Stratton, Inc., 1955. In between, as source material, are his many well known publications dealing with constitution and disease, genetics, endocrinology and psychotherapy, as well as a wide sampling of the literature as indicated in the remainder of the 193 references in the bibliography.

Simply by compressing so much material and so much thought into 136 pages, the author already achieves one phase of his objective: "To elaborate on the fundamental principles of a holistic concept of medicine." Every appropriate subject is touched upon and related to the notion of the individual as a unique whole. Because the book is so brief, it brings within the convenient grasp of the reader, both literally and figuratively, the many factors which influence individual constitution and which thus individualize illness. It also directs attention to those attributes in the physician necessary to his awareness of the "person behind the disease."

The condensation involved in such brevity also makes for a few inevitable difficulties. The very title, in which precision of meaning is sacrificed to catchiness, indicates the nature of the trouble. While the "elaboration" is broad and rounded in its range, it is necessarily shallow in its depth. Hence, some of the presentations, for instance on genetics and enzymes, may be difficult to follow if the reader is not previously well versed in the subject under consideration. Other presentations, such as some of those subsumed under discussions of psychologic medicine, are arbitrary and dogmatic. On the other hand, it is within just this area that Dr. Bauer makes an exceptionally clear formulation of his own position on the "mind body enigma," stated against the background of various views on the subject, some differing, some supporting: ". . . it is obvious that mind is attached to the body of the newborn person, and if we are to stay on the firm ground of logic we must conclude that it originated from the genes of the fertilized ovum."

Altogether, it is a pleasure to recommend this small book which so economically integrates for the reader everything he has previously learned about constitution and disease, and at the same time stimulates and directs him to literature which he may wish to explore.

Leona M. Bayer, M.D.

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EXPECTANT MOTHERHOOD—Third Edition, Revised—Nicholson J. Eastman, M.D., Professor of Obstetrics, Johns Hopkins University, Little, Brown and Company, 34 Beacon Street, Boston 6, Mass., 1957. 198 pages, $1.75.

This book for the prenatal patient is well known to obstetricians and to most other physicians who care for pregnant women. It has been enormously popular during the 17 years of its existence and undoubtedly will continue to be used as an educational device and as a source of answers to most of the questions with which obstetric patients constantly bedevil their doctors. The new edition has precisely the same number of pages as the previous one and there have been few changes in the text. In the discussion of anesthesia, such items as morphine, rectal ether and paraldehyde no longer are mentioned, but these gaps are neatly filled by brief mention of Demerol, Trilene, local anesthesia, and natural childbirth. The advice offered in this volume is a palatable mixture of common sense and science, presented in the lucid and pleasing literary style so characteristic of the author.

C. E. McLennan, M.D.

RADICULAR SYNDROMES—With Emphasis on Chest Pain Simulating Coronary Disease—David Davis, B.S., M.D., The Year Book Publishers, Inc., 200 East Illinois, Chicago, 1957. 266 pages, $6.50.

This book is a personal account of Doctor Davis' experiences with patients with chest pain simulating coronary disease whose basic difficulty was radiculitis from cervical arthritis. The book has a rather complete account of radicular syndromes in the cervical and thoracic spine and gives in some detail a series of cases personally observed and treated which support the author's thesis. It is extremely valuable to have this differential diagnostic entity called to our attention because of the differences in prognosis of the two diseases. The only criticism one might have toward the book is that at times Doctor Davis becomes a protagonist rather than an impartial, objective appraiser of the facts. One may wonder whether relief of chest pain with traction necessarily means that the chest pain was of radicular origin because of the psychological impact of physical therapy. The author is aware of this, however, and comments on other findings such as local tenderness and limitation of motion which support the radicular syndrome rather than coronary disease.

In view of the frequency and importance of chest pain from arthritis of the cervical and thoracic spine this book would be of importance to all practitioners.

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AN ATLAS OF CARDIAC SURGERY—Jorge A. Rodriguez, M.D., Assistant Professor of Surgical Anatomy and Research Association, Department of Surgery, University of Mississippi Medical School. W. B. Saunders Company, Philadelphia, 1957. 250 pages, $18.00.

This admirably assembled atlas of cardiac surgery is being published at a time when a real need exists for such a compendium. The rapid progress in the development of new techniques used in the management of congenital and acquired cardiac disease has far outstripped the ability of standard textbooks of surgery to keep abreast. Up to now the only available means for a student to become familiar with the field has been to read the original publications of a variety of surgeons appearing in numerous surgical journals. Lacking the experience for careful selection, the student is frequently only bewildered by the volume of published papers flooding the literature. Dr. Rodriguez has described and accurately illustrated the currently most acceptable methods and techniques in cardiac surgery.

Inasmuch as this field is being pioneered by a relatively small number of surgeons, each of whom has been noteworthy in the development of selected areas of cardiac surgery, it is apparent that an atlas of this type should be a summary of the experience of these specific men. The author has carefully selected surgeons whose reported results indicate proficiency. He indicates in the Preface that he has visited the clinics and operating rooms of each of these surgeons and from this experience has compiled, with the aid of drawings, a digest of their methods. Each procedure is linked with the name of the surgeon whose method is described.

The four main sections on cardiac surgery in the atlas are: I. Surgery of the great vessels, II. Surgery of the valves of the heart, III. Surgery of congenital defects of the heart, and IV. Pericardiectomy, revascularization procedures, wounds of the heart and cardiac arrest. When there is a significant difference of opinion between two surgeons, the method of each is described. The stages of each operative procedure are described, both in the text and in the accompanying drawings. When there are anatomic or pathologic variations associated with the same clinical syndrome, the variations are illustrated.

A separate section of the book deals with adjuvants to cardiac surgery. In this section are discussed instruments, anesthesia, hypothermia and mechanical, extracorporeal circulation. As in the operative descriptions, the author describes the methods and opinions of specific individuals and clinics.

One of the remarkable portions of this publication is the section: Surgical anatomy of the heart and great vessels. In this section Dr. Rodriguez, who is primarily a surgical anatomist, draws upon his personal experience in the dissecting room. As he indicates, "Classical anatomical descriptions of the heart may be inadequate and even misleading, because such descriptions are based on study of the heart removed from the chest cavity. In preparing the plates and descriptions, particular emphasis has been placed on those anatomical landmarks which are basic to the execution of surgery on the heart and great vessels."

In this reviewer's opinion "An Atlas of Cardiac Surgery" should have priority in the studies of surgeons now entering the field of cardiac surgery. The book is also of value to the cardiologist, internist or general practitioner who desires to be conversant with the principles of cardiac surgery. Although the author has not included a bibliography, the student will most certainly find that his study of surgical journals will be more expeditiously directed with the material in this volume as a background.

Edwin J. Wylie, M.D.

* * *

A NAVY SURGEON IN CALIFORNIA 1846-1847—The Journal of Marius Duvall—Fred B. Rogers (editor). Designed and printed by Lawton Kennedy, published by John Howell, San Francisco, California, 1957. $10.00.

Bernard De Voto wrote a few years ago a history entitled, *The Year of Decision*, 1846. Certainly 1846 was a year of decision for California, and the events of that exciting period are most interestingly told in "A Navy Surgeon in California 1846-1847—The Journal of Marius Duvall."

This medical man, assistant surgeon on the ship *Portsmouth*, takes an observant interest in the affairs of California. While, for the most part away from his medical duties, he writes on the spot of the Bear Flaggers, the Mormons and the Spanish Californians, there is important information relating to Fremont regarding the Berreyesa and de Haro killings.

Duvall helps to bring to life an important part of California history and his heretofore unpublished account belongs in every California library.

This beautifully designed and printed book is the work of Lawton Kennedy, one of California's leading printers.

Colonel Rogers is to be congratulated for editing, and Warren Howell for publishing this significant account.

Albert Shumate, M.D.

* * *

X-RAY TECHNOLOGY—Charles A. Jacobi, B.Sc., R.T. (A.R.X.T.), M.T. (A.S.C.P.), M.T. (A.M.T.), Head, X-Ray Technology, Oregon Technical Institute, Oretech, Oregon; and Donald E. Hagen, R.T. (A.R.X.T.), Instructor, X-Ray Technology, Oregon Technical Institute. The C. V. Mosby Company, St. Louis, 1957. 410 pages, $9.75.

Instructional material used for the teaching of students of x-ray technique has been brought together into this convenient volume. There are 18 chapters and a glossary. Elementary x-ray physics and electricity, darkroom technique, and anatomic technique for the different body sites are clearly outlined. The illustrations are mostly reproductions of those published in Merrill's "Atlas of Roentgenographic Positions," to which author due credit is given.

The glossary is a comprehensive one and the index adequate. The manual will be of use to students of x-ray technique.

SLEEP—Marie Carmichael Stopes, Doctor of Science, London. Philosophical Library, New York, 1956. 154 pages, $3.00.

An amusing combination of fact and fancy, of science and fiction, of knowledge and folklore on the subject of sleep. Foam rubber mattresses are described as "pernicious" because they "cut you off from electric currents of the earth with which you should be in contact."

The reader is warned to place his bed in a north-south direction lest magnetic currents cause a subconscious disturbance that interferes with sleep—as has occurred to the author.

Among a long list of Do's and Don'ts, one is cautioned to avoid foods like lobster salad which "may strain the digestion with sufficient extra work to stimulate the consciousness a little (and) turn dreams into seminightmares.

The passing of the bedroom chamber pot is bemoaned as an important cause of the current increase of sleeplessness.

It is difficult to tell if the book were written seriously or with "tongue in cheek." In any case it will not be a help to physicians who treat insomnia or patients who suffer from it.

Norman Q. Brill, M.D.

* * *

ESSENTIALS OF CLINICAL PROCTOLOGY—Third Edition—Manuel G. Spiesman, M.D., B.S., LL.D., F.I.C.P., Associate Professor of Proctology; and Louis Malow, M.D., B.S., F.A.C.S., Associate in Surgery, both from the Chicago Medical School. Grune & Stratton, New York, 1957. 316 pages, $8.75.

This work, with 36 chapter titles listing most of the common subjects in the anorectal area of Proctology (major surgery of the rectum and colon is not included) has been revised three times since its first appearance in 1946. This would seem to testify either to the general interest in this field or to the excellence of the book.

It is intended to present "... in outline form, only the essentials ... from simplified embryology and anatomy to preoperative and postoperative proctologic care." It is an outgrowth of lectures on diseases of the anus, rectum and colon given to medical and postgraduate students. The present edition has added chapters on the injection treatment of hemorrhoids, pediatric proctology, steps and illustrations in the performance of sigmoidoscopic examination, a chapter on ulcerative colitis and hydradenitis suppurativa as well as revised ones on postoperative complications, histopathologic classification of polyps, coccygodynia and proctalgia fugax.

The volume is not intended to be encyclopedic but is based, rather, on the personal experience of the authors and therein lies its chief claim to helpfulness as a text. While more comprehensive publications are more complete in their exposition, they may tend to be dispassionate, impersonal and undiscriminating in their views. The specialist in proctology will almost certainly find points with which he disagrees in several chapters while the uninitiated may accept more readily the methods set forth. However, the nonspecialist at least will have something tangible with which to work without the necessity of assaying a more extensive arbeit. This is not to say, of course, that the bulk of the book is controversial for most of the material is well established.

In the field of controversy is the subject of "The Pecten Band, Pectenosis and Pectenotomy," a topic in which the authors are particularly interested and to which they have devoted a disproportionately large chapter considering the brevity with which many other subjects are dealt. The existence of pectenosis as a clinical entity is not accepted by a large number of proctologists.

There are many other points of classification, interpretation and therapy with which some proctologists will find themselves in disagreement.

The sections on Pediatric Proctology, operative repair of procidentia, the simpler methods of repairing the incontinent anus and the treatment of malignancy, among others, are inadequate and incomplete.

However, the subjects of cystitis, papillitis, abscess, anorectal fistula, hemorrhoids, pruritus ani, tuberculosis, venereal diseases, polyps, coccygodynia, pilonidal disease and constipation are all dealt with in light of the authors' extensive experience over a period of thirty years with varying degrees of brevity but containing the essentials in good teaching form as is the intent of the book.

The diagrams, pictures and colored plates have been chosen with discrimination, are liberal in number and are forceful.

Walter Birnbaum, M.D.

* * *

GIFFORD'S TEXTBOOK OF OPHTHALMOLOGY—Sixth Edition—Francis Heed Adler, M.D., William F. Norris and George E. DeSchweinitz, Professor of Ophthalmology, University of Pennsylvania Medical School. W. B. Saunders Company, Philadelphia, 1957. 499 pages, 277 figures and 26 color plates, $8.00.

The fact that this is the sixth edition of a book written by Gifford and published for the first time in 1938 bears out Dr. Adler's contention that the book has been a satisfactory textbook for medical students and general practitioners. It avoids details that are found in so many smaller books supposedly published for the same purpose. Certain details which necessitate a rather intimate knowledge of ophthalmology have been omitted, and the book deals primarily in the problems of ophthalmology, injuries and diagnoses which are of interest to medical students and general practitioners.

Dr. Adler has edited the book for a sufficient number of editions that it is no longer entirely Dr. Gifford's book, but is a combination of the writings of two of our most outstanding ophthalmologists.

The format, printing and illustrations are up to the usual Saunder's standard. The book is highly recommended as an outstanding volume for medical students and all physicians wishing information on ophthalmology without the details found in the textbooks for ophthalmologists.

* * *

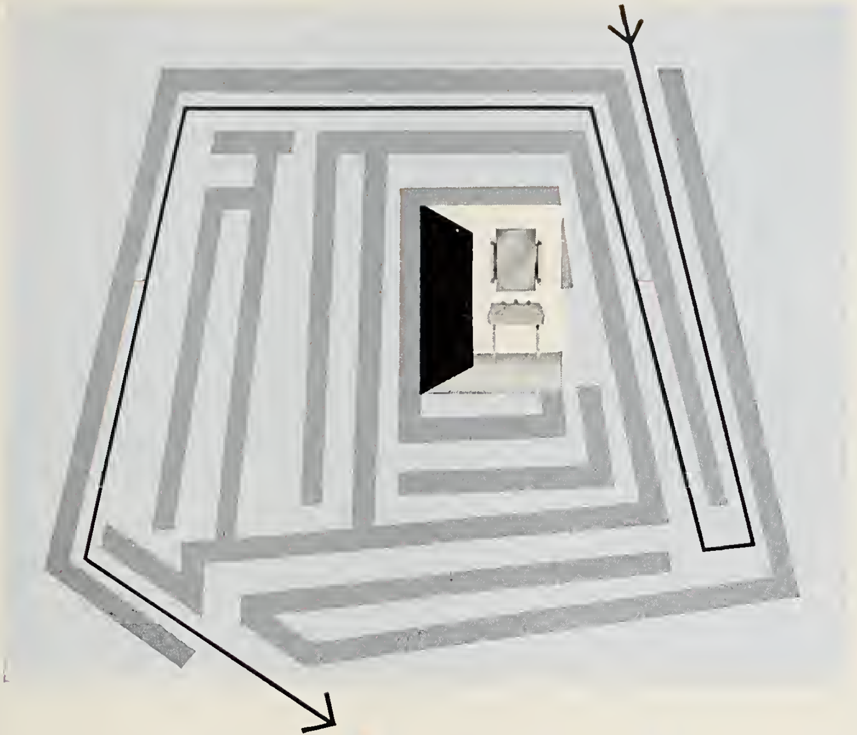
RYPINS' MEDICAL LICENSURE EXAMINATIONS—Topical Summaries and Questions—8th Edition—Walter L. Bierring, M.D., M.A.C.P., M.R.C.P., Edin. (Hon.), J. B. Lippincott Company, Philadelphia, 1957. 964 pages, $10.00.

The eighth edition of this book maintains the same arrangement as the previous editions. It provides a compact, concise and orderly presentation of the various fields of medicine as an aid in reviewing for licensure and other examinations.

The seventh edition was reviewed in California Medicine, 78:834, April 1953.

In this recent volume there is a short opening article on Medical Qualifying Examinations in which the objective multiple-choice written examinations are discussed and examples of questions given. There are small changes in wording and phraseology throughout the book. Here and there deletion of obsolete ideas and addition of new material occurs. The fact that allergy is no longer invoked as an etiological factor in collagen diseases, the elimination of external pelvimetry as a necessary procedure in obstetrics, and the mention of Salk vaccine are examples of the up-to-date revision of the text.

This book is abreast of present-day knowledge in the medical world and continues to hold its place as an excellent aid to the student who is preparing for examinations in both the basic medical sciences and the clinical sciences. It is also of value to the examiner in preparing examination questions.



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(Continued from Front Advertising Section Page 36)

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OPHTHALMOLOGIST, Board Certified, age 33, married, California licensed, will complete military service late 1957, desires association leading to partnership with another Ophthalmologist or affiliation with a clinic group. Box 93,675, California Medicine.

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(Continued on Page 86)

Study of Radioactive Fallout Victims

A two-year follow-up study of 84 Marshall Island natives accidentally exposed to radioactive fallout showed them to be in generally good health and recovering from radiation damage.

The study, reported in a recent issue of the *Journal of the American Medical Association,* was made by Dr. Robert A. Conard, Brookhaven National Laboratory, Upton, N. Y.; Lieuts. Charles E. Huggins (MC) USNR, and John B. Richards (MC) USNR, Naval Medical Research Institute, Bethesda, Md.; Dr. Bradford Cannon, Boston, and Col. Austin Lowrey (MC) USN Walter Reed Army Hospital, Washington, D. C.

The residents of Rongelap and Ailingnae Islands were exposed to radiation on March 1, 1954, after an experimental nuclear detonation some 100 miles away. The radioactive materials were carried by the wind to the islands.

In addition to the two-year follow-up, these people underwent studies six months and one year after the accident. Also included in the two-year study were 10 babies born since the accident and 57 unexposed Marshallese who served as comparisons.

The study showed increasing recovery from serious blood cell damage among the exposed group. All but 15 had recovered from skin injury, the authors said.

The residual skin damage was mainly in the form of pigment aberrations. Four persons also showed scarring. Nearly all of the exposed persons had suffered some type of skin damage and loss of pigmentation. Normal pigmentation had returned in most cases at the end of one year.

There was no suggestion of possible malignancy in the lesions of the 15 persons. The intense sunlight to which these persons are exposed did not appear to have adversely affected any of the skin lesions, the authors said.

While the people's white blood cell levels were still below normal, the two-year levels were not considered to be a serious condition, they said. It also appeared that the lowered white cell levels had not lowered the resistance of the people to disease; a chickenpox epidemic had occurred among exposed and unexposed persons without any serious complications.

One interesting finding was slight retardation in the growth and development of exposed male children as compared with unexposed children. The authors said no significance could be attached to these slight differences because of the small number of children (nine boys) and uncertainties about racial backgrounds; however, they noted that similar retardation was found among Japanese boys surviving the Hiroshima and Nagasaki atomic bombings.

The irradiated boys, compared with matched controls, showed a mean deficiency of 2.1 inches in

(Continued on Page 74)

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AZOTREX is the only urinary anti-infective agent combining:

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Study of Radioactive Fallout Victims

(Continued from Page 70)

height and 7.2 pounds in weight. There was no difference between exposed and unexposed girls.

The report also said: One man died within an hour after becoming seriously ill. Autopsy showed the cause to be hypertensive heart disease with congestive heart failure. There was no apparent relationship to radiation effects, particularly since hypertension was present when he was originally examined two days after exposure.

Five babies born between the first and second year studies had developed normally and were free of any apparent abnormalities.

Examination of the eyes showed no radiation effects, although there is still a possibility that damage may occur at a later date.

Radioactive analysis of bone samples taken from the man who died revealed no radiation that could be definitely associated with fallout deposition in the bones. In fact, the radioactivity that was present was "well below the accepted tolerance limit" and within the range found in the bones of Americans, they said.

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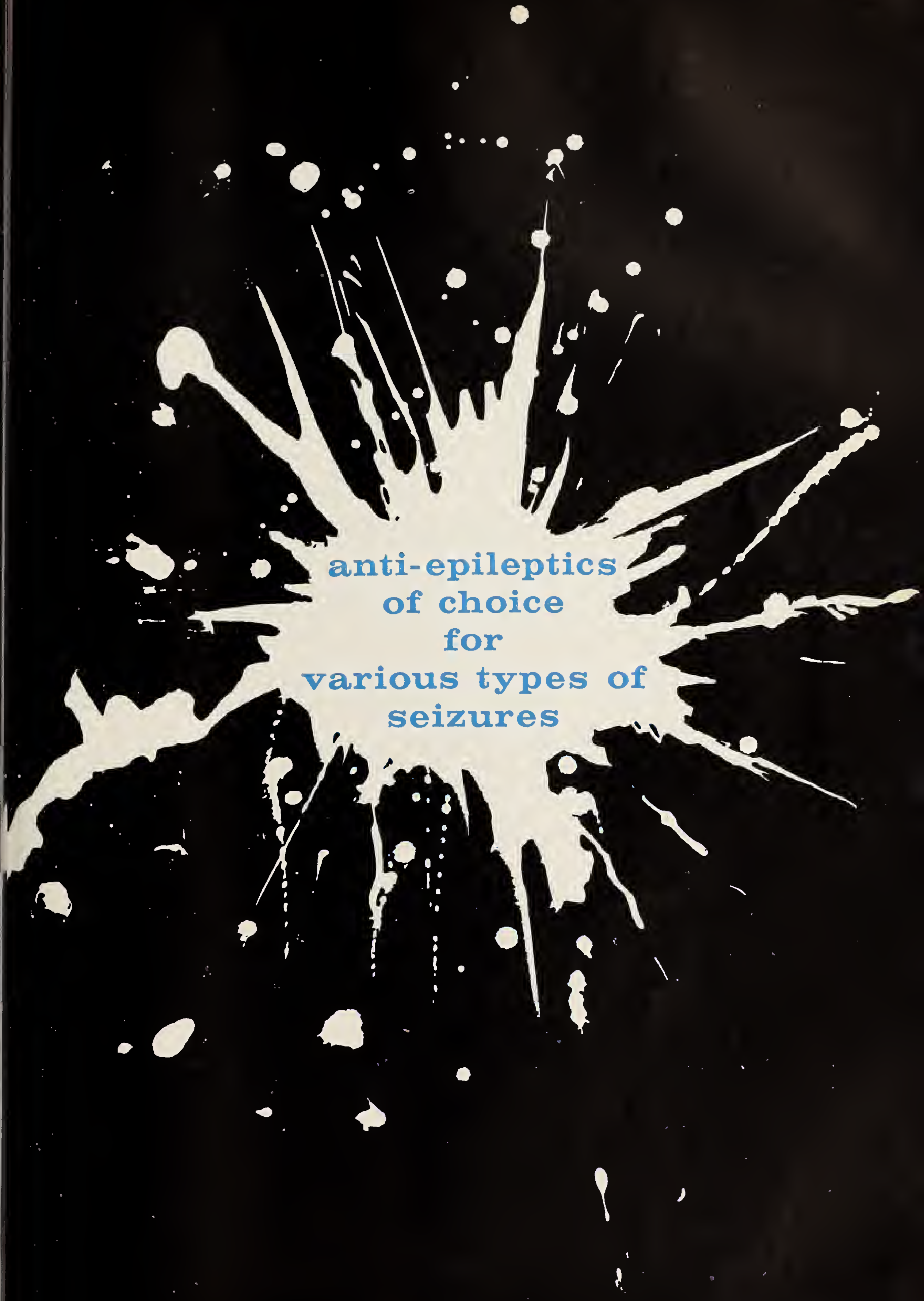

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Meat from Hormone-Fed Animals Found Non-Hazardous

Use of hormones in beef cattle and poultry to improve weight gain and feeding efficiency creates no hazard to people eating the meat, it was reported recently.

George M. Briggs, Ph.D., Bethesda, Md., made the report to the Council on Foods and Nutrition of the American Medical Association. It appeared in a recent issue of the American Medical Association *Journal.*

Dr. Briggs said the widespread use of hormone substances in this country, and the known hazards of improper use of hormones, raised the question of possible dangers to humans. He said studies indicate that traces of hormone remain in some meat from beef cattle and poultry.

However. he said only an individual eating large amounts of liver, kidney or other organs from such animals would consume more than a tiny amount of material with hormone activity. Ordinarily daily amounts of meat would not result in consumption of very much of this material.

He said this ordinary amount would not be dangerous because of these facts: (1) Much larger amounts of hormone material are produced by men

(Continued on Page 82)

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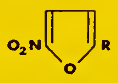
REFERENCES: 1. Lich, R., Jr.: J. Arkansas M. Soc. 52:271, 1956. 2. Beeson, P. B.: Yale J. Biol. 28:81, 1955. 3. Waisbren, B. A., and Crowley, W.: A.M.A. Arch. Int. M. 95:653, 1955. 4. Draper, J. W., et al.: J. Urol. 72:1211, 1954.



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Meat from Hormone-Fed Animals Found Non-Hazardous

(Continued from Page 78)

and women each day, circulated in the blood stream, and burned up or excreted; (2) animals and humans consume compounds with hormonal activity under normal conditions, including milk and some vegetables, and (3) since the 1930s thousands of persons have been treated with large amounts of hormone material without ill effect.

Dr. Briggs said the only potential hazard is the possible exposure of personnel in manufacturing plants, and in the results of mistakes in mixing and feeding. These hazards, however, can be carefully controlled and "with the continued vigilance of feed manufacturers, state feed control officials and the FDA, the use of estrogen in animal production provides an important tool for improved efficiency in food production."

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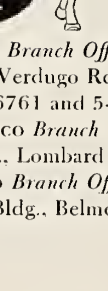

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CLASSIFIED ADVERTISEMENTS

(Continued from Page 70)

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(Continued on Page 110)

Asian Flu

For the first time in history, the medical profession is "ahead of an impending epidemic of influenza," Dr. Leroy E. Burney, surgeon general of the U. S. Public Health Service stated recently.

In fact, even before the first cases of Asian flu were reported, the profession was expecting a new strain of flu virus to appear, according to Keith E. Jensen, Ph.D., chief of the respiratory disease unit in the U.S.P.H.S. virus and rickettsia section at Montgomery, Ala. Their statements appeared in a recent issue of the *Journal of the American Medical Association.*

Dr. Jensen said, however, that while scientists were expecting a new type of flu virus, they could not develop a vaccine against it until it actually emerged and had been analyzed.

Careful study of past epidemics, which had made it possible to predict appearance of a new strain, also made it possible to develop vaccine quickly.

Dr. Jensen explained that four major types of virus (A, B, C, and D) are known to cause influenza. Each type is divided into several sets or families of strains. Type A—the one involved in the current epidemic—had produced three strains before 1957, including the one which apparently caused the 1918 pandemic.

Each strain had appeared and vanished, and this pattern had occurred often enough for investigators to expect it again. It appeared in May of 1957 when samples of what is now called Far East virus A were brought here from flu victims in Singapore.

The Far East virus is similar to the older strains but differs enough from all other types to require an entirely new vaccine. This has been made from viruses collected in early outbreaks of Asian flu.

Three different production methods have been worked out, and Army tests have shown the vaccine to be about 70 per cent effective, Dr. Burney noted.

He credited much of the profession's preparedness to the alertness of laboratory workers in the Far East who isolated the new virus, and to the worldwide influenza study program of the World Health Organization.

Dr. Burney said there is no doubt of the likelihood of an epidemic this winter, but at the moment there is no reason to expect it to be severe. The major danger is that—as probably happened in 1918—the virus may mutate, producing new strains different from the "parent" virus.

For this reason, even though the epidemic thus far has been "mild in terms of fatality," it cannot be taken lightly.

"Illnesses usually are prostrating for two or more days and are often followed by a period of lassitude and weakness," he said. "In an epidemic, medical care facilities may be temporarily overtaxed, attendance in school interrupted, and the entire econ-

(Continued on Page 90)

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Asian Flu

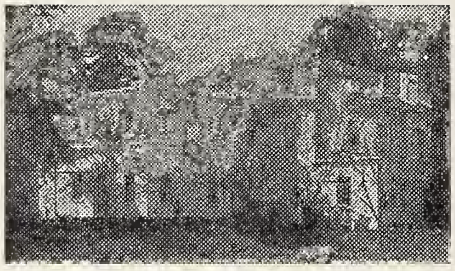
(Continued from Page 86)

omy disrupted by absenteeism in all types of industries, some of which are in critical areas."

The vaccine is "the only preventive tool at our command," Dr. Burney said. Therefore, the U.S.P.H.S., the A.M.A., and the Association of State and Territorial Health Officers are developing a plan for voluntary vaccination of as many persons as possible. The A.M.A. has asked its state and county societies to organize local programs to meet any possible outbreak. The A.M.A. program also is designed to relieve the strain on medical personnel which occurs "when so many people suddenly become ill."

"Any such campaign," Burney said, "must be conducted in an orderly fashion to avoid confusion and hysteria in the public and will call for the combined efforts of all of us."

C.M.A. Annual Session
Los Angeles
April 27-30, 1958



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---

1. Dickel, H. A., Wood, J. A. and Dixon, H. H.: Electromyographic studies on meprobamate and the working, anxious patient. Ann. New York Acad. Sc. **67**:780, May 9, 1957.
2. Dickel, H. A., Dixon, H. H., Wood, J. A. and Shanklin, J. G.: Electromyographic studies on patients treated with meprobamate. West. J. Surg. **64**:197, April 1956.

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Aging Persons Need Motive for Living

When some centenarian explains his long life as the result of not arguing before breakfast or of drinking a pint of corn whiskey with lunch, scientists listen with interest.

They have discovered that comments like these fortify a medical conviction that sustained growth and vigor in old age depend to a large degree on some positive motive for living.

Without motive, a person might be "old" at 35, with it he might be "young" at 70, according to a special article on aging in a recent issue of the *Journal of the American Medical Association.*

The population of Americans over 65 is increasing at twice the rate of the over-all population rise, the article said. With the increase in numbers there is developing the problem of "how to create a proper climate for senior citizens to grow with their age rather than stagnate in a tremendously expensive wait for death," an accompanying editorial said.

"Since medical science is largely responsible for this increased longevity, physicians everywhere must bear much of the burden of also prolonging man's span of vigor. It is a mammoth task, calling for action and planning in many fields besides medicine," the editorial said.

The aged population represents a still-untapped source of "manpower and brainpower that can be turned from an economic liability into a total asset," the editorial said. However, there must be careful community planning and coordination of various agencies and facilities.

(Continued on Page 104)

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Vitamin B_{12}	5 mcgm.
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CANRIGHT'S Comments

by
E. H. CANRIGHT
President
ELDON H. CANRIGHT CO., INC.

There are no "Comments" this month because early in September when I should have written the copy I took off for a fishing trip with several Doctor Friends and missed the deadline.

However, as our friends know, you can always write Canright with confidence.

That's all for this month––next month we'll try to have a message of more importance.

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Tooth Defects Give Clue in Brain Disorders

Dental enamel faults in children with congenital brain disorders may give a clue as to when the brain was damaged, a dentist and physician suggested.

Writing in a recent issue of the *Journal of Diseases of Children*, an American Medical Association publication, W. F. Via Jr., D.D.S., and Dr. J. A. Church, Henry Ford Hospital, Detroit, said the amount of enamel formed at a given age is known. Once formed, it cannot be remolded or reorganized like most other tissues but remains unchanged.

Certain events, which also may cause brain damage, cause normal enamel growth to be interrupted. The position of a defect caused by the interruption indicates when, and for how long, normal growth was suppressed.

By observing enamel faults and by checking medical histories for possible brain-damaging events, the time of the event which caused the existing brain abnormality can be more accurately dated and the cause confirmed, the authors said.

Possible brain-damaging events include erythroblastosis, prematurity, bleeding during pregnancy, toxemia, abnormal delivery, and respiratory difficulty immediately after birth.

The authors studied 100 children with various cerebral disorders and 100 apparently normal children. They found that 68 of the abnormal children had enamel faults, while only 10 of the normal children did.

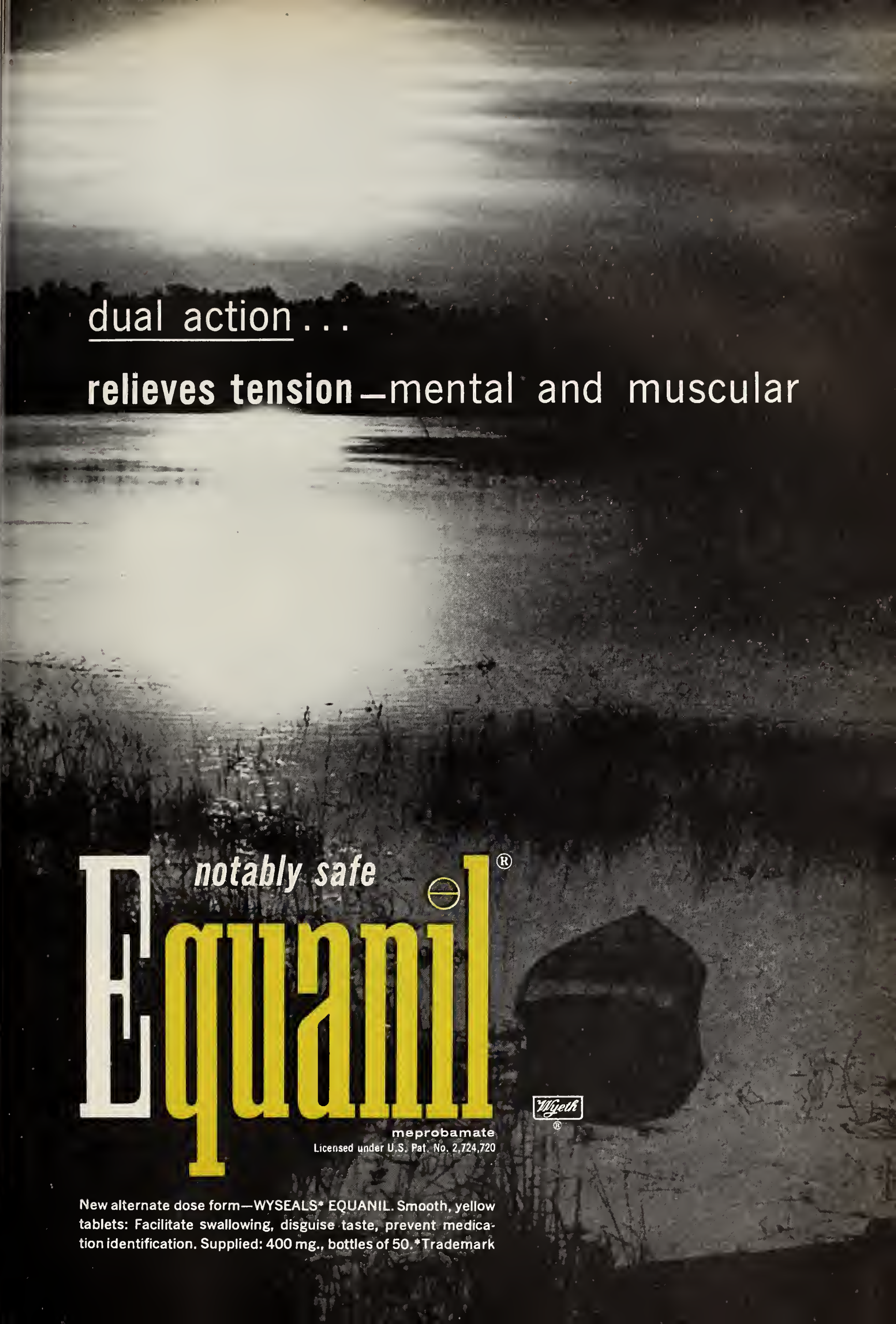
Of the 68 abnormal children with teeth defects, 44 were found to have a history of potentially brain-damaging events which occurred at the time of the appearance of tooth defects. The possibility of such coincidence occurring by chance alone is less than one in 100, they said.

Twenty-three abnormal children had histories of possibly brain-damaging events but no tooth defects, while 24 had enamel defects but no history of brain-damaging events. Nine abnormal children showed neither tooth defect nor brain-damaging history, or could not be fully studied.

Among 40 of the normal children for whom complete records were available, seven had experienced some potentially brain-damaging event. Two of these seven showed tooth defects.

In the abnormal children with tooth defects, the brain and enamel might have been damaged by the same process, the authors said. Or the enamel might have been damaged by disturbances caused by the previously injured brain. Perhaps the relationship of enamel defect to cerebral disorder is direct in one case and indirect in another, they said.

In the 24 cases with both defects but no history of trouble, either the histories were inaccurate or subtle causes were overlooked, they said. The possibility of undiscovered causes of brain damage and enamel faults should be kept in mind, they added.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Aging Persons Need Motive for Living

(Continued from Page 94)

The A.M.A., through its committee on aging, soon will publish guides for state and county medical societies to help them organize with allied medical and lay groups in meeting specific needs of the aging in their own areas.

Many community projects, including housing developments, planned recreation, and medical care facilities, have been set up throughout the country. In Chicago, a Commission on Senior Citizens is making headway toward better health, reduced transit fares, specially designed public housing, expanded recreational facilities and a more enlightened retirement policy by business and industry.

The A.M.A. committee on aging has agreed that "retirement should not be based arbitrarily on chronological age," but that employment in all age brackets should be a matter of proper assignment of skills.

The committee is drafting a physical examination form which will help companies and physicians evaluate a worker's particular capabilities. It is also trying to devise an aging quotient test based on physiological and psychological factors. Such a test would help the employer decide whether a man should retire or be moved to a less taxing job.

"There is little doubt, from a medical standpoint, that when men have their occupations taken away many of them become lost—experiencing a distinct deterioration of personality, a marked depression, and a great acceleration in the aging process," the article said.

"Lack of work, even when there is a pension, almost always presents a severe problem in economics, as well, to the elderly. At a time when his medical needs normally are the greatest, the earning power of the oldster is at its lowest. Multiplied by the millions, it is this factor—more than any other—which challenges the entire community in every corner of the nation," it said.

Blood Test Detects Myocardial Infarction

A laboratory blood test which aids in the diagnosis of a type of heart attack has been announced by a group of Detroit researchers.

Writing in a recent issue of the *Journal of the American Medical Association*, Roderick P. MacDonald, Ph.D., Dr. John R. Simpson, and Egon Nossal, B.S., of Harper Hospital, said determination of lactic dehydrogenase (LDH) levels in the blood stream can be used to aid the diagnosis of myocardial infarction.

In myocardial infarction the heart muscle cells are destroyed when a blood clot shuts off their blood supply.

(Continued on Page 121)

when anxiety and tension "erupts" in the G. I. tract...

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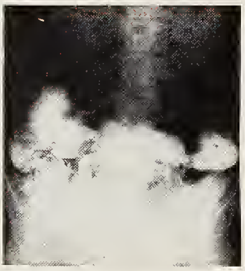

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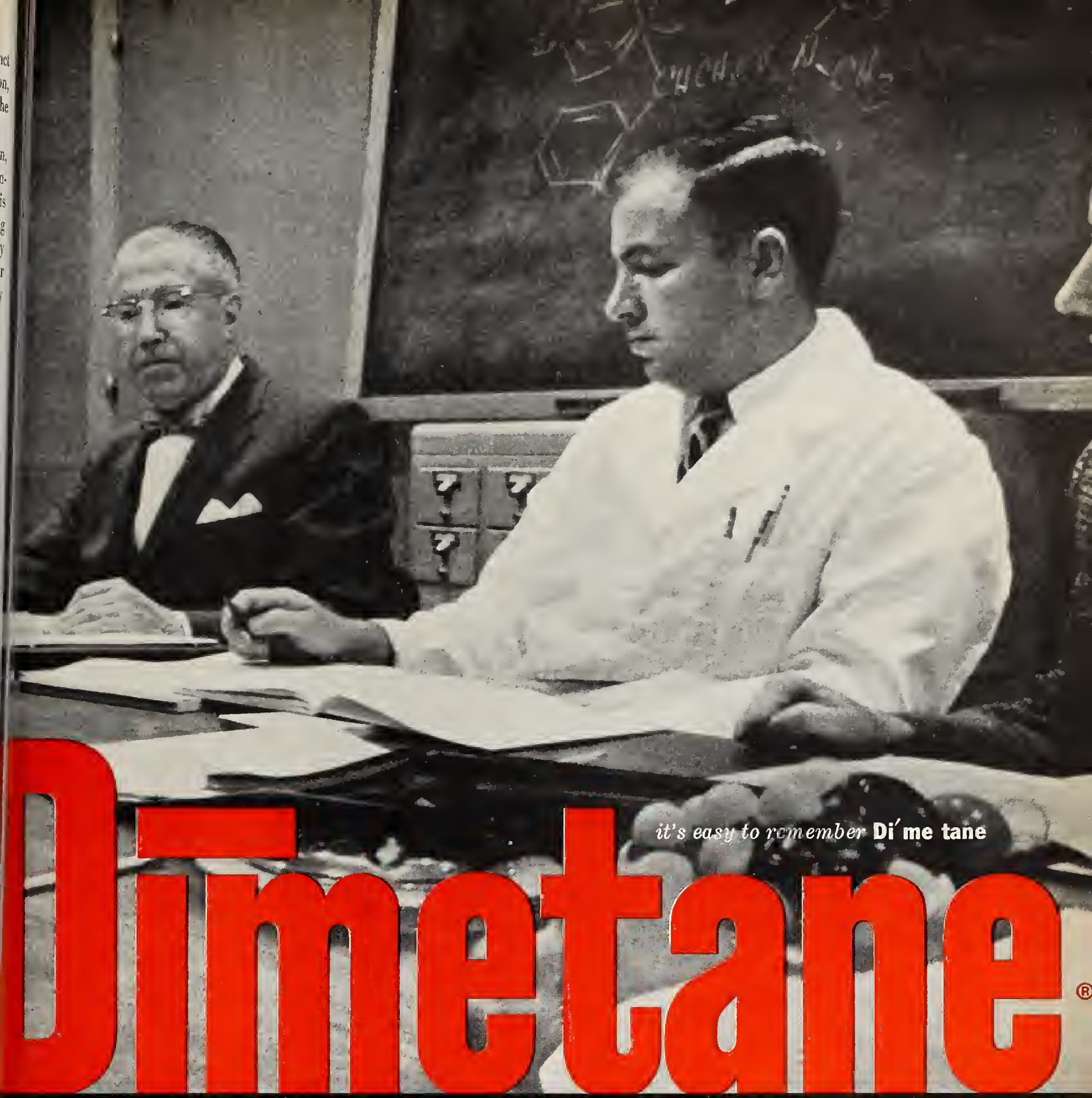
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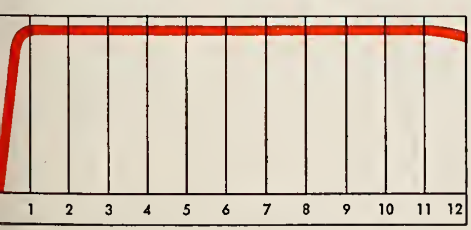

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CLASSIFIED ADVERTISEMENTS

(Continued from Page 86)

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Preparation for Aging Must Begin Early

Preparation for aging should begin in the "prime of life," a 72-year-old North Carolina physician stated.

Every physician should try to train his middle-aged and even younger patients to cultivate proper habits of eating, sleeping, exercise, recreation, work, and mental hygiene, Dr. Wingate M. Johnson, Winston-Salem, said in a recent issue of the *Journal of the American Medical Association.*

His article on the relationship of the physician to his aging patient is the first in a series on various aspects of aging, published under the auspices of the American Medical Association Committee on Aging.

Dr. Johnson, a member of the committee and a professor at Bowman-Gray School of Medicine, listed seven rules of conduct he devised for himself some years ago. These rules have helped some of his patients and friends grow old with a "reasonable degree of complacency," he said. They are:

1. Recognize that the mind should be at its best when a person is about 40 years old and should continue to be efficient to the age of 70 or more. Organic changes in the brain do not necessarily parallel mental changes. The mind which is properly trained does not lose its elasticity, and constant use of the brain helps to keep it efficient.

2. Avoid becoming an "old fogy" by frequent association with young people. Prepare for occasional shocks, but try to understand youth's viewpoint.

3. Learn to delegate authority and to unload responsibility upon younger, more enthusiastic shoulders.

4. Cultivate wide interests. Learn new uses for hands and brain, and exchange more strenuous amusements for others less arduous.

5. Keep in touch with old friends and make new ones to avoid loneliness.

6. Cultivate equanimity—the mental poise that keeps one from being unduly elated or depressed. Keep a proper balance between emotion and reason.

7. Cultivate the habit of looking forward rather than backward.

Dr. Johnson noted that the physician must help his older patient face his aging process. The oldster's attitude may be resentful, resigned or realistic. The physician can help foster the correct attitude by being sympathetic, sincere, and sensible.

"Many of the most unpleasant traits of adolescence and old age have a common basis—the desire to belong. . . . The adolescent wants to achieve recognition as a useful member of society; the oldster wants to retain that recognition. The physician can help the older patient's morale by showing a genuine interest in him and his environment," he said.

A physician needs to be more than just a doctor to an aging patient; he must be "guide, philosopher, and friend," Dr. Johnson concluded.

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BOOKS RECEIVED

Books received by CALIFORNIA MEDICINE *are acknowledged in this column. Selections will be made for more extensive review in the interests of readers as space permits.*

BOOK OF CONTEMPLATION, A—Dagobert D. Runes. Philosophical Library, 15 East Street, New York, 1957. 149 pages, $3.00.

CLINICAL GASTROENTEROLOGY—Eddy D. Palmer, M.D., F.A.C.P., Lt. Col., M.C., U.S.A., Consultant in Gastroenterology to the Surgeon General. Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers, 49 East 33rd Street, New York 16, N. Y., 1957. 630 pages, $18.50.

CRAIG AND FAUST'S CLINICAL PARASITOLOGY—Sixth Edition—Ernest Carroll Faust, A.B., M.A., Ph.D., William Vincent Professor of Tropical Diseases and Hygiene, Tulane University School of Medicine; and Paul Farr Russell, M.D., M.P.H., Staff Member, The Rockefeller Foundation; Consultant to Surgeon General, U. S. Army. Lea & Febiger, Philadelphia, 1957. 1078 pages, 346 illustrations, 7 colored plates, $15.00.

CURRENT SURGICAL MANAGEMENT—A Book of Alternative Viewpoints on Controversial Surgical Problems—Editors—John H. Mulholland, M.D., New York University College of Medicine, Editor-in-Chief; Edwin H. Ellison, M.D., Ohio State University College of Medicine, and Stanley R. Friesen, M.D., University of Kansas Medical Center. With Contributions by 76 American Authorities. W. B. Saunders Company, Philadelphia, 1957. 494 pages, $10.00.

FROM STERILITY TO FERTILITY—A Guide to the Causes and Cure of Childlessness—Elliot E. Philipp, M.A., M.B., B. Chir., F.R.C.S., M.R.C.O.G. Philosophical Library, 15 East 40th St., New York, 1957. 118 pages, $4.75.

HANDBOOK OF ORTHOPAEDIC SURGERY—Fifth Edition—Alfred Rives Shands, Jr., Medical Director of the Alfred I. duPont Institute of the Nemours Foundation, Delaware; Visiting Professor of Orthopaedic Surgery, University of Pennsylvania School of Medicine. The C. V. Mosby Company, St. Louis, 1957. 725 pages, 214 illustrations, $9.75.

IT PAYS TO BE HEALTHY—A World-Renowned Physician Guides You to Success, Happiness, and Health in Your Work—Robert Collier Page, M.D., F.A.C.P. Prentice-Hall, Inc., Englewood Cliffs, N. J., 1957. 285 pages, $4.95.

MAN AND WIFE—A Source Book of Family Attitudes, Sexual Behavior and Marriage Counseling—Edited by Emily Hartshorne Mudd, M.S.W., Ph.D., Director, Marriage Council of Philadelphia, and Aron Krich, Ed.D., W. W. Norton & Company, Inc., New York. 291 pages, $4.95.

MODERN PERINATAL CARE—Leslie V. Dill, M.D., M.D., F.A.C.S., Associate Clinical Professor, Obstetrics and Gynecology, Georgetown University School of Medicine. Appleton-Century-Crofts, Inc., 35 W. 32nd St., New York 1, 1957. 309 pages, $6.50.

ONE SURGEON'S PRACTICE—Frederick Christopher, M.D., Emeritus Professor of Surgery, Northwestern University Medical School. W. B. Saunders Company, Philadelphia, 1957. 151 pages, $4.00.

PROGRESS IN GYNECOLOGY—Volume III—Edited by Joe V. Meigs, M.D., Clinical Professor of Gynecology, Harvard Medical School; and Somers H. Sturgis, M.D., Clinical Professor of Gynecology, Harvard Medical School. Grune & Stratton, New York, 1957. 780 pages, $15.50.

PSYCHOPATHIC PERSONALITIES—Harold Palmer, M.D., Philosophical Library, New York, 1957. 179 pages, $4.75.

Blood Test Detects Myocardial Infarction

(Continued from Page 104)

Lactic dehydrogenase is a body enzyme which is increased in the blood stream following muscle cell destruction. A marked increase in the blood LDH level, along with other common diagnostic signs, makes diagnosis of such heart failures much easier, the researchers said. In fact, the serum LDH levels make myocardial infarction diagnosis possible "when all other methods have failed."

The use of blood tests in analyzing tissue destruction in the body has been assuming increasing importance, the authors said. In 1955, a similar test using another enzyme, transaminase, was described by a group of West Coast researchers.

The LDH level test has two advantages over the transaminase test: In myocardial infarction the LDH levels remain higher for a longer period of time, and the testing procedure is less complicated.

The new test is especially useful, they said, when an electrocardiograph fails to give a clear picture of heart damage or when complications occur after myocardial infarction.

The researchers studied 174 patients, of whom 94 had heart disease. The LDH level was higher in all 44 patients with myocardial infarction and substantially higher in 39. The rise in LDH level in these patients began on the first day of the patient's attacks. Maximum levels were reached on the second and third days and slowly declined to normal by the sixth to eleventh days.

While several other diseases cause increased LDH levels, they generally are not confused with acute myocardial infarction because of other diagnostic signs which distinguish between them. There are also some diseases which show the same symptoms as myocardial infarction; however, these do not cause rises in the LDH levels. Thus the LDH test can be used in the differentiation of such illnesses.

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on page 86.

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Activity Recommended As Fatigue Treatment

Rest is not "a universal panacea" for fatigue, even among aging persons, a New York physician recently stated.

In many cases, activity is a better remedy, especially when the fatigue results from "atrophy of disuse," Dr. Theodore G. Klumpp, president of Winthrop Laboratories, Inc., said.

In the absence of specific disease as a cause of fatigue, it arises in older persons from the normal physiological processes of aging which reduce the body's endurance; from loss of incentive, motivation, and interest; from a decline of glandular activity, and from "atrophy of disuse."

Fatigue is "a normal incident of normal living," but when its pattern changes radically or it interferes with ordinary activities, it becomes a serious problem and needs medical attention, Dr. Klumpp said in a recent issue of the *Journal of the American Medical Association.*

"For a long time, the approach to the problem of fatigue was thought to be simple. A brief history of the patient's mode of life was obtained with one objective in mind—to cut out something.

"It made little difference how little the individual was doing—if the patient was tired, something had to go . . . if the patient did nothing more than sit in a rocking chair all day long, he was no doubt advised to stop rocking and go lie down," he said.

Now physicians know better. Following the surgeons' practice of getting patients up soon after surgery, they now prescribe physical activity.

The pattern of American life is specifically designed to avoid physical activity and stress—to the point where physical exertion is virtually eliminated, the author said. Young people are able to keep in relatively good physical condition through sports and play, but, as they grow older, they tend to give up these things. With the help of "labor-saving devices, now including electric golfmobiles," they begin to suffer rapidly and too early in life from atrophy of disuse.

This brings with it a loss of muscular tone and functional reserve of all parts of the body, so that the slightest added stress causes undue fatigue. Maintaining an adequate physical reserve against stress is the best preventive for such fatigue.

Fortunately some degree of fitness can be regained through a program of graded exercise at any time, except where its loss is due to advanced organic disease. The exercise should be fun for the patient and should not be drudgery. Along with the exercise, the aging patient also needs an adequate amount of sleep at night and if necessary a short nap at midday.

Undue fatigue occurs more commonly among overweight persons. In addition to the obvious diet, the physician should prescribe some type of exercise,

(Continued on Page 24)

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American Medical Association Council on Drugs Recommends Influenza Treatment

Antibiotics and sulfa drugs should not be used to treat Asian influenza but should be saved for patients with complications, according to an American Medical Association council report.

The report, prepared by the Council on Drugs at the request of the American Medical Association's special committee on influenza, appears in a recent issue of the American Medical Association *Journal.*

The report pointed out that pneumonia and its complications frequently followed the influenza of 1918-19. Since there is a similarity between this year's movement of Asian influenza and that of 1918, the council report was made to inform physicians as to the exact role antibiotics and sulfa drugs should play in the treatment of influenza and its secondary infections.

An accompanying editorial pointed out that most viruses, including those causing Asian influenza, are not affected by antibiotics and sulfa drugs. Therefore, using them to treat influenza serves no purpose. However, they do affect bacterial infections, such as pneumonia, which may follow flu.

Actually very little can be done to treat influenza itself. The best treatment, which may help prevent complications, is bedrest, sufficient fluids, and agents to reduce fever.

Antibiotics should not be given to persons already suffering from influenza with the hope of preventing bacterial infections, the report said. The drugs should not be given for two reasons: To prevent the development of bacteria that would be resistant to the drugs, and to prevent the patient from becoming sensitive to the drugs.

In addition, the editorial pointed out that antibiotics and sulfa drugs sometimes cause adverse side effects which may be "merely annoying in healthy persons," but "disastrous for the critically ill."

The only exception to this rule would be patients who develop influenza while receiving the drugs for other bacterial infections, very ill or run-down infants and older persons, and patients suffering from chronic, nonallergic respiratory tract disease.

All influenza patients who develop secondary bacterial infections should be treated with a sulfonamide or antibiotic, depending on the causative organism, the report said. However, it warned that careful checks for sensitivity to these drugs should be made.

The council report concluded with the advice that patients with uncomplicated influenza should be treated at home and not taken to a hospital, thus avoiding possible exposure to bacterial complications.

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Number of patients	173
Average daily dose	2-3 tablets (5 mg. each)
Average duration of treatment	6 weeks
Average weekly weight loss	2-2½ lbs.
Side effects	9*

*Minimized by dosage adjustment

STUDY NO. II[2]

Number of patients	52
Average daily dose	2-3 tablets (5 mg. each)
Average duration of treatment	9 weeks
Average weekly weight loss	2.1 lbs.
Side effects	1*

*Adjusted with dosage

economy and low dosage of LEVONOR make it possible to administer this drug long enough to favorably alter the patient's eating habits.

Administration and Dosage:

Average dose: 5 to 10 mg. twice daily.

Bibliography

1. Sc. Exhibit, N. Y. State Med. Meeting, Feb. 18-21, 1957.
2. Pomeranze, J.: Report 807: 1957.
3. Frohman, I. P.: Report 315: 1957.
4. Dwyer, Thomas: Report 912: 1957.
5. Gadek, R. J.: Report 186: 1957.
6. Sc. Exhibit, Mich. State Med. Soc. Meeting Sept. 25-27, 1957.

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Thyroid Preparations Must Be Kept Fresh

(Continued from Page 24)

the Frieda Meyer Nishan Foundation for the Study of Goiter of the Jackson Clinic.

The appearance of headache—a frequent symptom of hypothyroidism, but one seldom mentioned in textbooks—may give warning that a drug is losing its potency and needs replacing, Dr. Jackson said.

Hypothyroidism is "the most common chronic affliction" of persons living in the Midwestern "goiter belt," Dr. Jackson said. Typical hypothyroid patients become tired and exhausted easily, chill readily, sleep with little effort during the day, are forgetful, and are often mentally and physically sluggish.

Many cases are overlooked because of inaccurate metabolism tests, Dr. Jackson said. He recommended that more than one test be made on persons who appear to be hypothyroid but give normal metabolism test readings.

He noted that hypothyroid patients will probably always have to have treatment, but small doses of thyroid preparations can satisfactorily overcome the symptoms.

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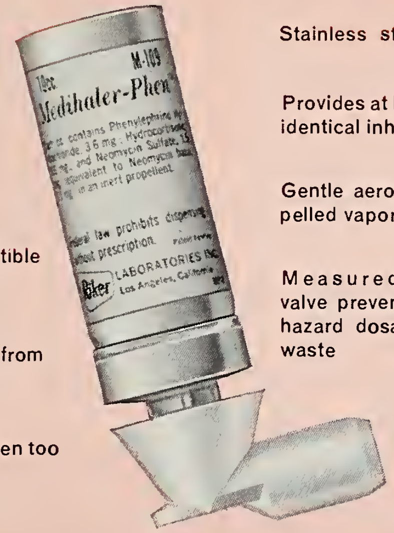
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Shots Needed After Contact With Rabid Humans

While few actual cases of rabies contracted from other humans have been proved, it is possible for the disease to spread from one human to another, according to an expert on infectious diseases.

For that reason, any person who has been exposed to the saliva of a human suffering rabies should be inoculated against the disease, Dr. Karl F. Meyer, San Francisco, said.

Dr. Meyer, director emeritus of the Hooper Foundation, University of California Medical Center, discussed rabies in an editorial in a recent issue of the *Journal of the American Medical Association.* Dr. Meyer, who was once called "the Pacific Ocean of public health," has studied a variety of other diseases, including brucellosis, botulism, East Coast fever, the encephalitides, plague, psittacosis, Q fever, and tularemia.

In the editorial Dr. Meyer said that the saliva of a rabid person contains the rabies virus. When the patient becomes disoriented and violent, his saliva may contaminate the skin and clothing of persons trying to treat or restrain him. If the attendant has an open sore or cut, the rabies virus could enter the skin.

Thus a physician is "duty-bound" to treat such exposed persons with anti-rabies vaccine, Dr. Meyer said. While many persons have been vaccinated even though they probably did not need the protection, the treatment was "in the best tradition of preventive medicine," he said.

There have been only a few documented cases of man-to-man spread of rabies. This may be because all persons in intimate contact with a rabid person are treated with anti-rabies vaccine as soon as the diagnosis is proved by laboratory tests, Dr. Meyer said.

One report, published in 1940, said that of 8,591 persons in contact with human rabies infections, only one contracted the disease. While he was in Russia recently, Dr. Meyer said he heard of rabies being transmitted by homeless orphans who roamed the streets during the postrevolutionary period when medical and public health services were almost nonexistent. However, few of these cases were investigated or proved.

Rabies is normally transmitted from infected dogs, cats, bats, and various wild animals. Early treatment with anti-rabies vaccine is necessary to prevent the development of the disease. Nothing can be done for a patient once he has the disease.

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PAGE 58

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Olympic Winners Overcome Physical Handicaps

Two Olympic gold medal winners have proved it is possible to completely overcome severe physical handicaps.

Harold V. Connolly, 25, won a 1956 Olympic gold medal in "one of the tensest hammer throwing competitions ever staged." even though he was born with a partially paralyzed left arm. This disability served as a strong incentive for his outstanding athletic performances, according to Dr. Ernst Jokl, Lexington, Ky.

Karoly Takacs, 46-year-old Hungarian, became as good—or even better—a pistol shooter with his left hand as he had once been with his right. An international champion pistol shooter with his right hand, Takacs lost that hand after an accident in 1938.

Within eight months, he was shooting with his left hand. and in 1939 he won the world championship at Lucerne, Switzerland. He won gold medals in the 1948 London Olympic games and the 1952 Helsinki games, and competed in the 1956 games at Melbourne.

Dr. Jokl, who examined both men at Melbourne, said the excellence of Takacs' athletic performance is so great as to place both his preamputation and postamputation attainments in "a class of their own."

Writing in a recent issue of the *Journal of the American Medical Association*, Dr. Jokl. who is associated with the Kentucky Rehabilitation Center, Inc., University of Kentucky, said Takacs' case proves it is possible for the nervous and muscular systems to "relearn" a lost skill. In fact, it is possible for an entirely different part of the body to learn a skill formerly confined to another part.

Takacs' case is especially interesting because it involves not only the motor aspect of performance. but also the integration of touch, vision and equilibrium, Dr. Jokl said.

Takacs' case emphasizes the part played by a central pattern of nervous and muscular skill in that it was possible for him to switch from one side of the body to another.

It also raises the question of whether some cerebral factor underlying his extraordinary efficiency before amputation also explains the ease of transfer to the other hand, Dr. Jokl said. In other words, he wondered if Takacs wouldn't have been a great pistol shooter regardless of what had happened to him.

Connolly's underlying motivation for prolonged training is "rational in terms of his personal objectives, dignified in execution, and . . . of a high order of maturity," Dr. Jokl said.

Connolly suffered a birth injury. His left arm is

(Continued on Page 50)

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The recommended adult dose is 1 Gm. (2 tablets or 4 teaspoonfuls of syrup) the first day, followed by 0.5 Gm. (1 tablet or 2 teaspoonfuls of syrup) every day thereafter, or 1 Gm. every other day for mild to moderate infections. In severe infections where prompt, high blood levels are indicated, the initial dose should be 2 Gm. followed by 0.5 Gm. every 24 hours. Dosage in children, according to weight; i.e., a 40 lb. child should receive 1/4 of the adult dosage. It is recommended that these dosages not be exceeded.

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Syrup:
Each teaspoonful (5 cc.) of caramel-flavored syrup contains 250 mg. of sulfamethoxypyridazine. Bottle of 4 fl. oz.

[1] Nichols, R. L. and Finland, M.: J. Clin. Med. 49:410, 1957.

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University of Minnesota Survey Reveals Diphtheria Susceptibility

Nearly half of the new students entering the University of Minnesota in one year were not immune to diphtheria in spite of a long-time statewide program of diphtheria immunization, it was recently reported.

Three university researchers said that 47.2 per cent of 2,899 students entering the university in the fall of 1954 responded positively to the Schick test. A positive reaction to this skin test indicates susceptibility to the disease.

The researchers also found that adults can be inoculated against the disease without suffering severe reactions. The likelihood of such reactions has long been a deterrent to the routine inoculation of adults.

Their study, reported in a recent issue of the *Journal of the American Medical Association*, substantiates other studies which show a high degree of susceptibility to diphtheria in the adult population. It also indicates the need for and the safety of routine inoculation of all students entering college, they said.

The percentage of positive Schick reactions was significantly higher in those students 20 years of age and over than in those under 20 years. It was also higher for men in the age group 20 to 24 than for women in the same age group.

The researchers noted that 42.3 per cent of the 16-and-17-year-old students were susceptible to diphtheria. This was especially significant, they said, since most of the students came from Minnesota, where diphtheria immunization has long been accepted by the public and vigorously promoted by the state health department.

All students with positive Schick tests were immunized against the disease, they said. Mild adverse reactions to the immunization occurred in many students, but they were not severe enough to rule out the routine use of diphtheria inoculation in students entering college, they concluded.

The authors are Drs. Ruth E. Boynton and Donald W. Cowan, and Paul Rupprecht, M.A., of the University of Minnesota Health Service, Minneapolis.

Tips for Overcoming Insomnia Listed

Physical contact—even if it's only your own hand touching your leg—helps overcome sleeplessness by providing a feeling of security, according to an Indiana sleep researcher.

Donald A. Laird, Ph.D., Lebanon, Ind., an industrial psychologist, said sleeplessness is frequently caused by some type of anxiety that keeps the person so "vigilant" that he can't go to sleep.

Developing a feeling of security, even temporarily, helps overcome anxiety and vigilance, Dr. Laird said in a recent issue of *Today's Health.*

He pointed out that security for sleep does not deal with robbers breaking in, the house burning down or finances. It is an emotional security that deals with the affections of others, and the feeling of being accepted by them. The seeds of emotional insecurity are frequently planted in childhood, he said. Between the ages of three and five, most children go through a period of stress. They become confused, annoyed, and sometimes rebellious at the restrictions placed on them, and they develop various fears. These anxiety-arousing stresses—and being sent to bed too early—make this age a time when going to sleep is often a difficult problem. A pattern of poor sleep is sometimes started and may last for years.

It is seldom possible to get rid of serious anxieties without the aid of specialists, but some people find they can shelve their anxiety at bedtime by the distraction method. They count sheep, rhyme girls' names with names of cities, do mathematical problems or read something completely unrelated to their work or anxiety-producing problems.

There is also an assurance from body contact which is attributed to racially old characteristics of the sensory nerves in the skin, Dr. Laird said. The contact seems to allay unexpressible anxieties. Children may go to sleep more easily if a parent lies down beside them or keeps a hand on them. The contact of a favorite doll or woolly animal may help.

A few people provide their own body contact, unconsciously, by keeping a hand on their leg, face, stomach, or "their bald spot during chilly nights."

In theory, a person should sleep better alone in bed and alone in the room, but many people find that sleeping alone is "as anxiety-arousing as solitary confinement." Then having animals in the room or leaving on a radio or dim light helps provide a feeling of security.

Going through the same bedtime routine every night is almost universal. Such rituals serve a useful purpose. They seem to ease anxieties, temporarily at least, and decrease the need for feeling vigilant by distracting thoughts from anxieties, Dr. Laird stated.

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References: (1) Gelvin, E. P.; McGavock, T. H., and Kenigsberg, S.: Am. J. Digest. Dis. 1:155, 1956. (2) Holt, J. O. S., Jr.: Dallas M. J. 42:497, 1956. (3) Natenshon, A. L.: Am. Proct. & Digest Treat. 7:1456, 1956. (4) Council on Pharmacy and Chemistry, New and Nonofficial Remedies: J.A.M.A. 163:356 (Feb. 2) 1957.

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Olympic Winners Overcome Physical Handicaps

(Continued from Page 33)

shorter and weaker than the right and is partially paralyzed.

The disability presented him with a difficult psychological and social problem in childhood. However, he resolved to overcome the handicap, and set out to study different types of athletic training. Later he consulted several European coaches and former Olympic hammer throwers.

He trained extensively and took up weight lifting to strengthen his arms. In the process, he greatly strengthened the right arm and to a lesser extent the left. He became the first American since 1924 to win a gold medal in hammer throwing. He holds the world records of 224.10½ feet for the 16-pound weight and 66 feet, 8.5 inches for the 35-pound weight.

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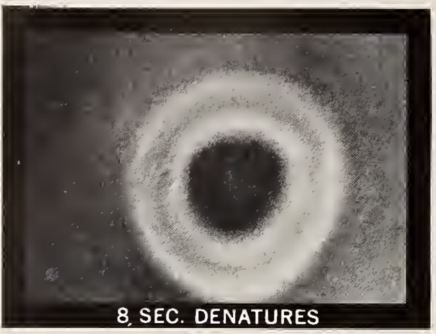

8 SEC. DENATURES

In a new study of vaginal trichomoniasis in which VAGISEC® liquid and jelly were used, Albert Decker, M.D., reports: "The organism is destroyed by 'explosion' within a few seconds after contacting the [trichomonacide] in a dilution that is nontoxic and nonirritating."[1]

VAGISEC liquid and jelly, used by the Davis technique,† offer a new approach to successful treatment of vaginal trichomoniasis.[1-4] By *exploding* — not merely inactivating — hard-to-reach flagellates as well as those in surface secretions, VAGISEC therapy quickly rids the vagina of trichomonads that tend to survive and cause flare-ups.*

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REFERENCES:

1. Decker, A.: New York J. Med. 57:2237 (July 1) 1957.
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*For a small percentage of women who have an involvement of cervical, vestibular or urethral glands, additional measures are required.[1,3,4]

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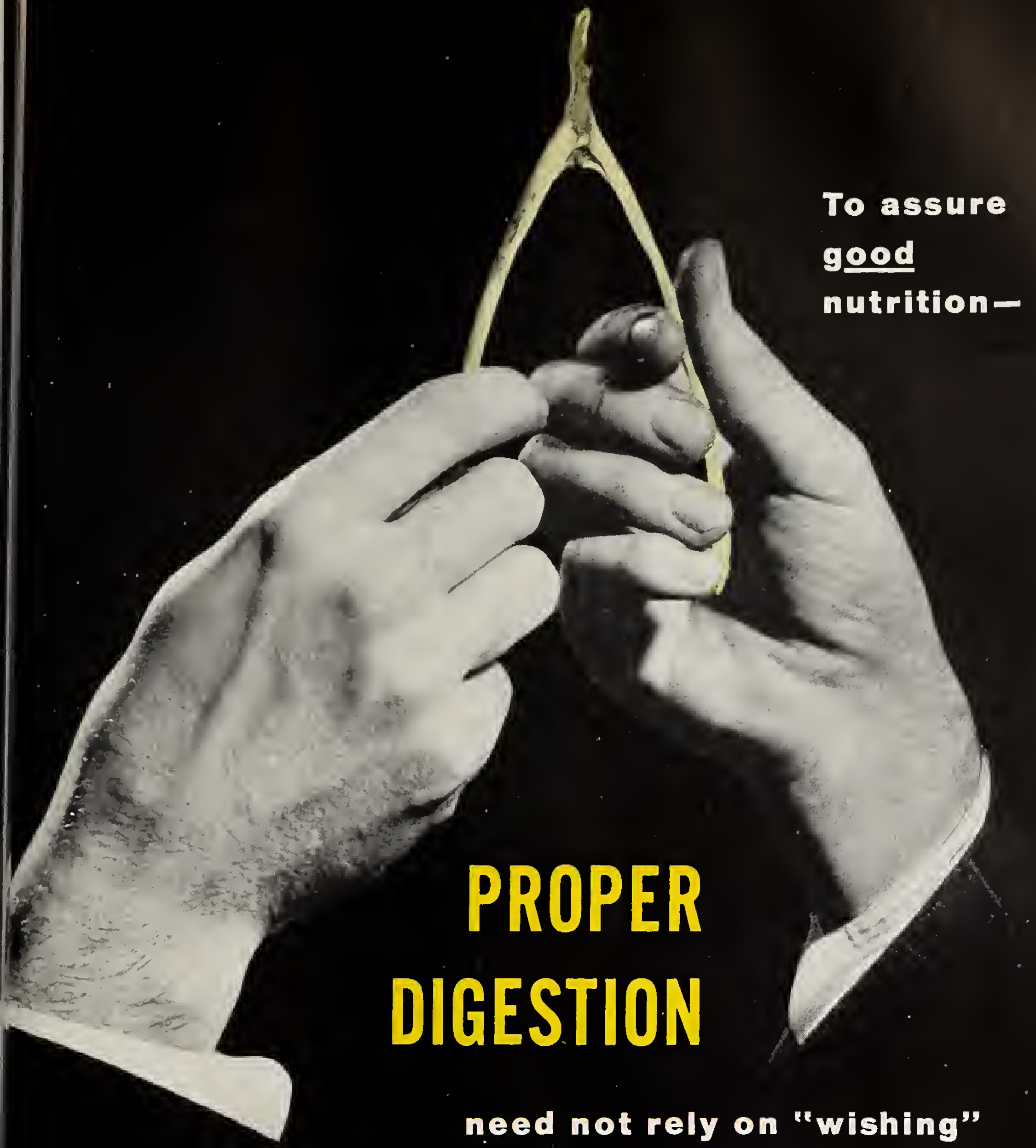

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In spite of its name, diaper rash is not usually caused by diapers, according to an editorial in a recent issue of the *Journal of the American Medical Association.*

Diaper rash is a general term for several types of skin eruptions in the "diaper region," the editorial said.

The commonest cause of a rash is the formation of ammonia by bacteria after urea is broken down. Other eruptions may be prickly heat, thrush, chafing, allergy, and various types of dermatitis.

All of these rashes are aggravated by lack of cleanliness and softening of the skin, which may occur if it remains moist too long. The best preventive for diaper rash is changing the diaper as soon as possible after it becomes wet or soiled. This prevents softening of the skin and the formation of ammonia.

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(Continued in Back Advertising Section, Page 70)

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SUPPLIED: Tablets, 50 and 100 mg., bottles of 25 and 100.
Oral Suspension, 25 mg. per 5 cc. tsp., bottle of 60 cc.
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REFERENCES: 1. Nesbitt, R. E. L., Jr., and Young, J. E.: Obst. Gyn., N. Y. 10:89, 1957. 2. Diggs, E. S.; Prevost, E. C., and Valderas, J. G.: Am. J. Obst. 71:399, 1956. 3. MacLeod, P. F.; Rogers, G. S., and Anzlowar, B. R.: Internat. Rec. Med. 169:561, 1956.

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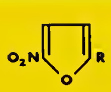

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(Continued in Back Advertising Section, Page 78)

Residency, Internship Training Increases

More than 30 thousand physicians last year took graduate training either as an intern or as a resident.

According to the annual report on internships and residencies, prepared by the American Medical Association's Council on Medical Education and Hospitals, the number of medical school graduates taking further training continued to increase in 1956-57.

There were 9,893 graduates serving internships in 1956-57, an increase of 290 over 1955-56, while 23,012 were serving residencies, an increase of 1,587 over the preceding year. The training was offered by 1,372 approved hospitals.

The percentage of available internship and residency positions filled in 1956-57 remained the same as that of 1955-56. Respectively they were 83 and 81 per cent filled.

The report in a recent issue of the *Journal of the American Medical Association* also showed:

—During the past 10 years, there has been an increase of 6 per cent in the number of approved hospitals and an increase of 31 per cent in the number of internships offered.

—The number of interns per hospital has increased from 11.3 ten years ago to 13.9 in 1956-57.

—Federal hospitals offered 5.4 per cent of the available internships, while nonfederal governmental hospitals offered 32 per cent and nongovernmental institutions the remainder. The federal hospitals had the highest rate of filled positions, with Army hospitals having no vacancies and Public Health Service hospitals having 99 per cent filled. County and state hospitals had occupancy rates of 91 and 89 per cent respectively.

—There has been an increase in the average monthly cash stipend paid to interns. Hospitals affiliated with teaching institutions raised their stipends from an average of $87 in 1954 to $140 in 1956, while nonaffiliated hospitals raised their stipends from an average of $136 to $177.

—The report listed those hospitals with the highest autopsy rates, pointing out that the autopsy rate is regarded as "an index of the scientific interest of the medical staff in medical education and in the progress of medicine." Hospitals with low rates are being urged to increase the number of autopsies performed.

—The National Intern Matching Program, which matches interns to the hospitals in which they wish to train, has matched more than 35,000 students in the last six years without an error.

—There are 17 residency review and conference committees which function as joint liaison groups of the A.M.A. Council on Medical Education and Hospitals with various specialty boards and, in certain instances, the American College of Physicians, the American College of Surgeons, and the American Academy of General Practice.

—Seven specialties accounting for more than

(Continued on Page 63)

Elderly Persons Need to Reduce Food Intake

Most aging persons do not need to alter their normal eating habits, except to decrease the amount they eat, a New York physician has stated.

Basically the nutritional requirements for the aged are the same as for younger adults. However, older persons need fewer calories to maintain their normal weight, Dr. Herbert Pollack said in a recent issue of the *Journal of the American Medical Association.* The article is one of a series prepared under the auspices of the A.M.A.'s committee on aging.

Dr. Pollack, associate professor of clinical medicine, New York University Postgraduate School of Medicine, said the "obesity of the elderly is not due to gourmandizing," but to eating the same amount of food they did in their younger years when their bodies needed more food.

The body needs a decreasing amount of oxygen as it ages. When this is coupled with a decreased overall physical activity, it means that the body needs fewer calories to maintain the same weight.

Many religious rituals and certain food practices among groups of people indicate that they have long recognized the place of periodic fasting and limited diets in the prevention of overeating. Now scientific knowledge of nutrition and diet makes it possible to develop diets that are rich in the necessary nutrients but do not lead to overweight, Dr. Pollack pointed out.

In some cases special diets must be devised for aging persons with chronic diseases which sometimes influence nutritional requirements, Dr. Pollack said. For instance, patients with Parkinson's disease sometimes have trouble feeding themselves. They may need concentrated food in liquid mixtures as between-meal supplements.

Limitation of physical activity because of heart and circulatory diseases or arthritis means there must be a compensating decrease in caloric intake, Dr. Pollack said. Otherwise weight gain is inevitable and this added weight causes a further load on the circulation and on weight-bearing joints.

In setting up a diet, the physician must also pay attention to the "mechanical state" of the food as well as to its nutritional content since many elderly people have difficulty chewing because of tooth or mouth disorders.

Regardless of the type of patient receiving the diet, the physician must make certain that the diet "not only is nutritionally adequate on paper but is actually consumed by the patient."

Residency, Internship Training Increases

(Continued from Page 58)

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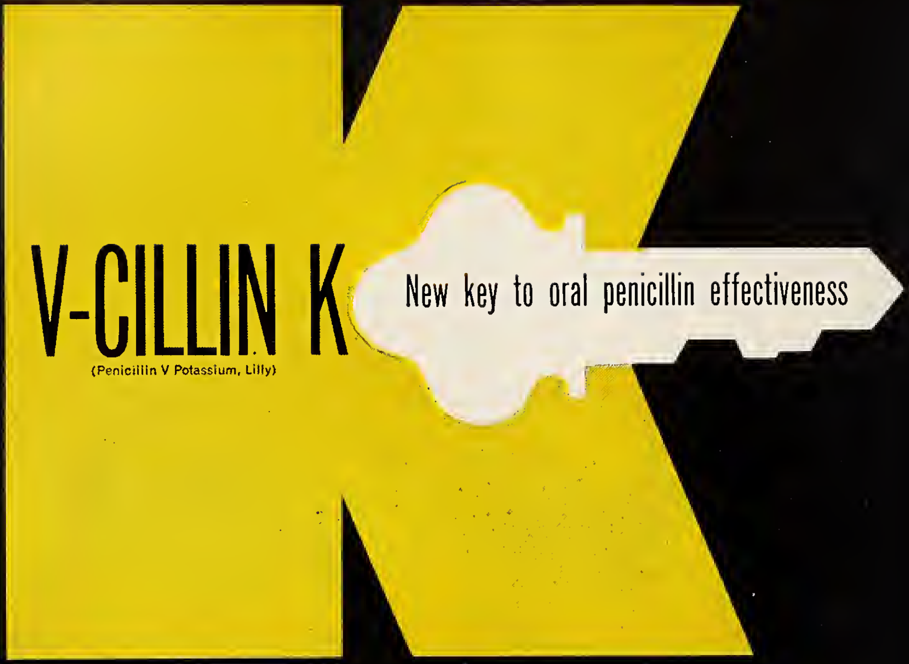
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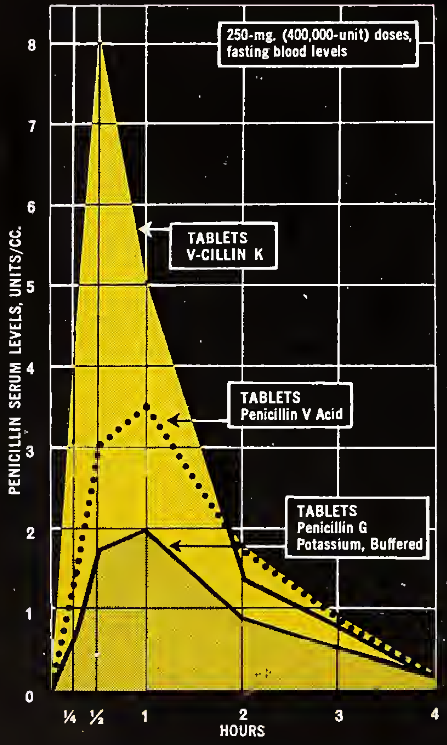

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California
MEDICINE
OFFICIAL JOURNAL OF THE CALIFORNIA MEDICAL ASSOCIATION

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Volume 87 NOVEMBER 1957 Number 5

Hypothyroidism in Men in Industry

A Preliminary Report on Chemical Evidence

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and PAUL STARR, ***M.D.,*** **Los Angeles**

• Of 2,807 specimens from blood donors and men in industry, 340 or 12 per cent had serum protein-bound iodine values of 4.0 micrograms or less per 100 cc.

In a selected group of 610 "white collar" workers, 52 or 8.5 per cent had similar low values.

Careful reexamination of a sample of the latter group indicated that at least 75 per cent of them had hypothyroidism needing treatment.

Further analysis of the factors producing hypothyroidism and the validation of the incidence found is warranted. If the incidence observed in this study is confirmed, these findings indicate that 6 per cent to 9 per cent, or more than a million middle aged American men have hypothyroidism.

In THE LAST DECADE of the last century, Osler's textbook[19] was the standard source of information on the diagnosis and treatment of hypothyroidism. Osler credited Sir William Gull[9] and the Ord report[18] with making easy the diagnosis of myxedema proper (adult myxedema, as distinguished from cretinism and cachexia strumipriva). He noted the early use of thyroid gland transplants by Victor Horsley[10] and the subcutaneous injection of an extract prepared first by Horsley's pupil, Murray.[17] A little later, Hector Mackenzie[14] of London and Howitz[11] in Copenhagen started the method of feeding thyroid substance. In Osler's opinion it was well to begin with the powdered gland, one to three grains (0.06 to 0.2 gm.) and gradually increase to ten or fifteen grains (0.6 to 1.0 gm.) daily. "The results," he said, "as a rule are most outstanding—unparalleled by anything in the whole range of curative measures. Within six weeks, a poor, feebleminded, toad-like caricature of humanity may be restored to mental and body health."

In addition to the clinical types described by Osler, we now recognize juvenile myxedema and hypothyroidism of a degree insufficient to produce myxedematous changes, but associated with other phenomena, in particular delayed skeletal maturation, demonstrably improved by thyroid medication.[36]

Hypothyroidism secondary to hypopituitarism is also a well established entity that more often than not is not of myxedematous degree.[16,24] A low content of protein-bound iodine (PBI) and a low uptake of I^{131} with significant increase of the uptake of I^{131} and output of PBI^{131} following injection of thyrotropin establish the diagnosis.[21] Monotropic deficiency has also been described.[25]

While even before the use of present day procedures it was readily accepted that these nonmyxe-

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Supported by the Warner Chilcott Laboratories.

With the technical assistance of Maria Deering.

Presented before the Section on Internal Medicine at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

dematous forms of hypothyroidism existed, the existence of a common form that the authors and other investigators believe most often represents a state between myxedema and euthyroidism, and which has been defined as "the state of the tissues produced by the presence of less thyroxin than the homeostatic mechanism demands,"[27] has not been generally credited. This form is less easily demonstrable because of dependence on the basal metabolic rate, the cholesterol level and the therapeutic trial as the bases of diagnosis even in this more enlightened day; because of failure to use adequate dosage in therapeutic trials and, finally, because of the weight of tradition, leading textbooks,[4,15,26,37] even to this day, describe only myxedema as it was described by Gull, Ord and Osler more than fifty years ago. They deny or do not mention hypothyroidism. "History may not repeat itself, but the writers of textbooks do and their reiteration, be it true or false, strengthens our beliefs."[2] The feeling of some authorities is that a serum protein-bound iodine of less than 3.5 or 4.0 micrograms per cent 100 cc. (depending on their line of division) may occur in health. The implication is that uncomplaining people are healthy, especially if they have other (indirect) evidence of normal thyroid function, such as the unreliable basal metabolic rate, the nonspecific serum cholesterol or the easily influenced uptake of I^{131}.

We insist that protein-bound iodine below 4 micrograms per 100 cc. of serum indicates a diseased condition that should be treated. Very few exceptions, based on most unusual biochemical mechanisms, occur. These exceptions will be discussed later. One wonders how many uncomplaining obese middle-aged women with fasting blood sugar content of 200 mg. per 100 cc. would be considered healthy, or whether a young woman with hemoglobin content of 10 gm. per 100 cc. of blood would be permitted to go untreated unless she complained of feeling ill. Werner included an extensive description of the changes in myxedema[35] and admonished the reader that lesser grades of the disorder exist.

It has been shown that in usual circumstances the circulating hormone is thyroxin[33] bound chiefly to a globulin (TBG) in the interalpha region in electrophoresis.[7,8] In our experience facilities for determining the serum protein-bound iodine (PBI) content are generally available in California. The test is highly specific and is a reproducible means of directly ascertaining the amount of circulating thyroid hormone.[28,29,34] Before obtaining the specimen of blood or before interpreting the result, certain precautions must be taken, as indeed must be done in the case of many laboratory procedures used in everyday practice. It must be remembered that the iodinated substances used in such roentgenographic studies as bronchograms, myelograms and sinus tract visualization will interfere with determination of PBI for an interminable period of time; the substances used for gallbladder studies and those used for intravenous pyelograms will make the test unreliable for many months or years and for several weeks, respectively. The external application of iodine, the use of iodinated gargles, swabs, toothpaste or suppositories, the ingestion of kelp, mineral-vitamin combinations, potassium iodide, Lugol's solution, expectorants and various other iodinated medicines will also invalidate the test. Use of such substances should be discontinued for three or four weeks before a specimen of blood is drawn. The normal diet, even though it includes seafood and iodinized salt, does not interfere. Administration of a mercurial diuretic causes an artificially low value for 24 to 48 hours when the distillation method is used. Mercury does not obscure the result of the alkaline ash method devised by Barker[1] and modified by Ware.[27] Our laboratory uses the latter procedure with such checks and controls as are necessary to insure reliability.

THE SERUM PROTEIN-BOUND IODINE OF MEN IN INDUSTRY

Through the cooperation of the medical departments of various industries in Southern California and the Hyland Laboratories Blood Bank, 10 cc. specimens of clotted blood drawn at the time of routine examinations were mailed to our laboratory, just as they can be mailed from any remote area to a central laboratory. We have so far determined the protein-bound iodine in duplicate in 2,807 specimens of blood thus obtained. Six hundred and ten of these specimens were drawn at the time of a routine annual physical examination of men who were working in an executive or supervisory capacity —the "white collar group." Most of the men were from 40 to 50 years of age. The results are graphically shown in Chart 1. Delimitation of the normal range of the PBI is not yet finally settled, but the most generally accepted dividing line between euthyroidism and hypothyroidism is 4.0 mcgm. per 100 cc.[3] It had been established that the serum protein-bound iodine does not change with age.[30] There were 340 specimens of the total of 2,807 that contained less than this amount; and in 52 of these the specimens were from the executive group of 610. The incidence of what may be unsuspected or inadequately treated hypothyroidism in men was, then, about 12 per cent for the entire group and 8.5 per cent for the "white collar" group. As to the higher incidence in the blood bank group—all supposedly healthy, not anemic persons, without systemic infection or gross disease—the explanation is not evident and the disparity warrants exhaustive study.

We are at present conducting further studies of these men aimed at demonstrating the presence or absence of hypothyroidism.

The first such study has been to do a repeat PBI and cholesterol determination on those executives who, on routine screening, were found to have PBI less than 4.0 mcgm. per 100 cc. This was done in 38 instances and the finding was confirmed in 30. Of the eight repeat specimens that were reported normal, four were thought to have become normal because of treatment or more diligent use of previously prescribed thyroid extract. Hence a correct indication of the serum PBI was obtained by the first specimen in 34 of these 38 cases. Twenty-four of the men have had a complete survey that included a history, physical examination, examination of the blood, urinalysis, an electrocardiogram, determination of blood sedimentation rate, of basal metabolic rate, 24-hour uptake of I^{131} and cholesterol content, and, in 12 cases, phospholipid and lipoprotein determinations. The four cases in which the repeat PBI was inexplicably normal are included. The results are summarized in Table 1.

In this selected group it is no surprise that the history was of positive value in only one instance of thyroidectomy. Multiple complaints were admitted, but only that of tiredness or lack of energy was a general one. Fourteen men were overweight at the time of the interview; five others had dieted successfully. Except for a palpable thyroid gland in three cases, there were no helpful physical findings noted. A summary of disorders in which hypothyroidism should be suspected has been published.[31]

Six of the 24 men had previously been diagnosed as hypothyroid. Only three of the six had been taking thyroid extract regularly, and in only two instances was the amount being increased periodically as indicated by serial determinations of PBI. Two were taking a small amount of thyroid extract intermittently. One (Case T, Table 1) had had adequate management some years ago but "friends" advised

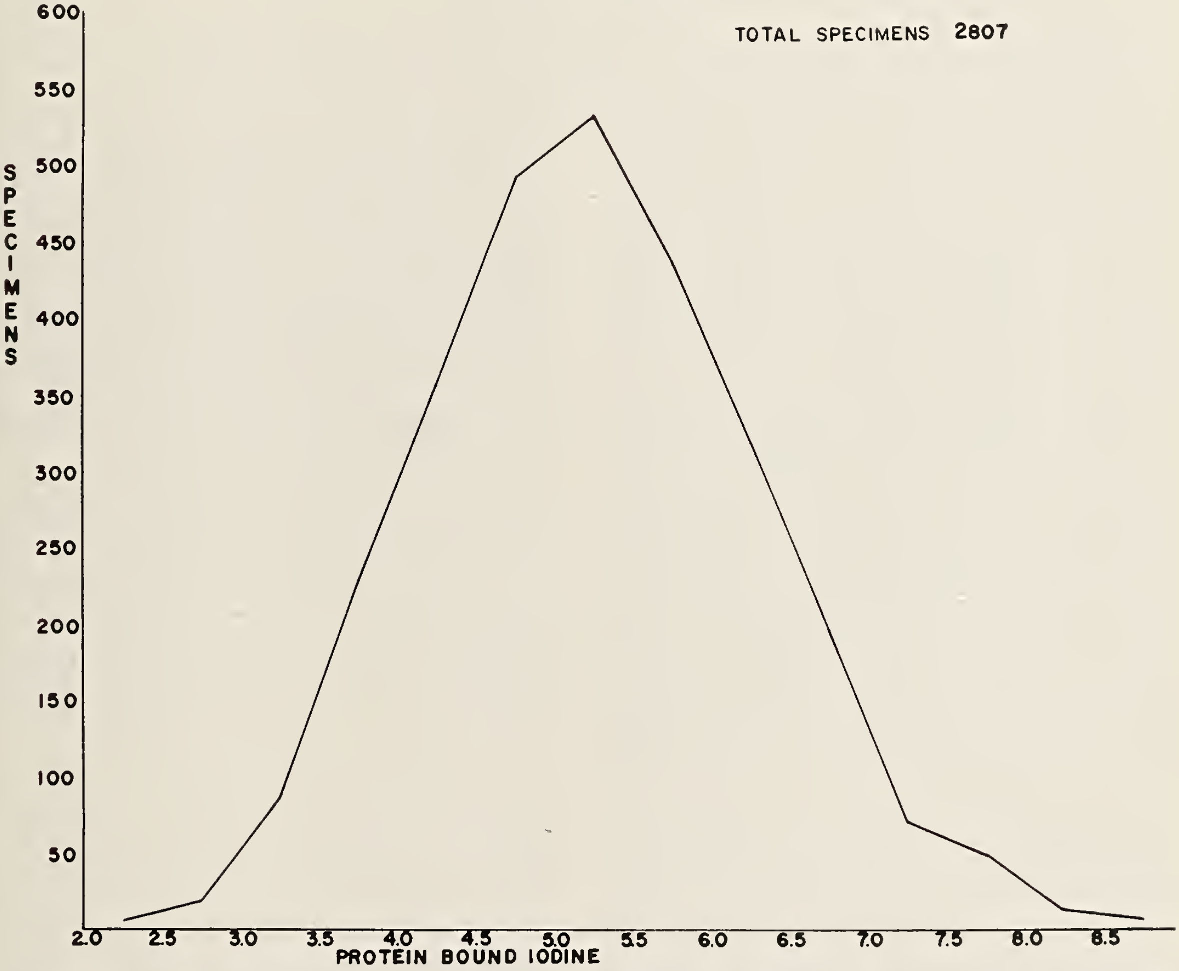

Chart 1.—Arithmetic distribution curve of serum protein-bound iodine values in 2,807 men from about 40 to 60 years of age. The vertical column shows the number of specimens of blood; the horizontal line the content of protein-bound iodine per 100 cc. of serum. The normal range is usually regarded as from 4.0 to 8.0 micrograms per 100 cc. (See Werner, The Thyroid, p. 139, Hoeber-Harper 1955).

TABLE 1.—*Summary of Survey Findings (Twenty-four of Fifty-two Men in the "White Collar" Group)*

Case	Class*	First PBI	Second PBI	BMR	Cholesterol (mg. per 100 cc.)	I^{131} Uptake (Per Cent)	Age (Years)	Comment
A†	II	3.5	3.7	....	190	10.9	23	
B	III	3.0	3.7	— 4	295	12.7	44	
C	IV	3.5	4.5‡	—14	450	1.3‡	56	Taking 0.2 mg. sodium L-thyroxine daily
D	IV	3.7	3.8-4.3	—20	290	14.8	59	Previous thyroidectomy
E	I	3.4	4.5-4.4	— 6	240	15.4	36	
F	IV	3.3	3.9-4.4	—27	230	8.7	48	
G	IV	3.3	3.5-3.9	—12	275	15.1	55	
H	III	3.5	3.5-3.8	+ 4	330	24.1	50	
I	III	2.9	3.4-3.7	— 4	210	2.9‡	55	Taking 0.12 gm. thyroid daily
J	IV	3.6	3.9-3.9	—15	300	6.0	33	
K	IV	3.6	3.5-3.6	—12	270	1.1‡	43	Taking 0.16 gm. thyroid daily
L	IV	3.8	4.2‡	+ 1	350	8.6	43	Taking 0.06 gm. thyroid daily
M	III	3.7	4.0	—11	255	12.7	49	
N	III	3.6	4.1	— 1	350	15.1	57	
O	II	3.6	4.0-4.2	—22	260	17.3	39	Hypometabolism?
P	IV	3.7	5.5‡-5.5‡	—14	310	16.0	41	
Q	II	3.6	3.8-3.8	+ 1	260	19.2	35	
R	II	3.6	4.5-4.7	—20	330	23.2	55	Hypometabolism
S	IV	3.9	4.0-4.2	—17	335	14.7	41	
T	III	2.6	3.3-3.5	— 9	350	13.6	52	Previous treatment
U	IV	3.4	4.4‡-4.6‡	+ 1	310	8.5‡	56	Taking 0.2 gm. thyroid daily
V	II	3.9	4.4-4.6	+ 4	285	18.5	45	
W	III	3.8	3.9-4.0	—14	220	25.6	36	
X	III	3.9	3.9-4.1	+ 7	292	12.4	57	

*Class I, euthyroid; II, probably euthyroid; III, probably hypothyroid; IV, hypothyroid.

†Included because of previous diagnosis of hypothyroidism on basis of low PBI.

‡Effect of treatment.

PBI = Protein-bound iodine, in micrograms per 100 cc. BMR = Basal metabolic rate.

him to stop taking so large a quantity of medicine; later on he had a series of 24-hour I^{131} uptake studies and the results were said to be within normal limits; on this basis and without benefit of such venerated procedures as the determination of basal metabolic rate and cholesterol content, let alone PBI, this man was not taking much-needed thyroid medication.

At this point it should be emphasized that the uptake of I^{131} measures just the ability of the thyroid to accumulate iodine, not its ability to produce or discharge hormone. Of ten men in the present group who were adjudged definitely hypothyroid (Class IV) by virtue of three agreeing tests, four had a low normal uptake of I^{131} (over 10 per cent and under 16 per cent); and of the six with an uptake of less than 10 per cent. four were taking thyroid extract, which might well have suppressed the uptake. In the group considered probably hypothyroid, only one had uptake below 10 per cent, and this person (Case I, Table 1) was taking thyroid extract.

The basal metabolic rate was less than minus 10 per cent in 12 of these subjects, eight of whom were considered as definitely hypothyroid, two probably hypothyroid and two probably euthyroid. In eight of 12 instances when the PBI was 3.5 mcgm. per 100 cc. or below on at least one occasion, the basal metabolic rate was in the normal range. Four of these subjects were considered probably hypothyroid, although they would be definitely considered hypothyroid on the basis of the PBI alone, even with ultra-conservative standards. Two men had to be placed in the probable euthyroid group because results of all tests except the PBI were within normal limits. The sources of error in the basal metabolic rate, both inherent and technical, are well discussed by Werner[35] and have repeatedly been emphasized by Starr,[27] whose most interesting observation has been the production of a normal basal metabolic rate in a totally athyreotic myxedematous person, presumably brought about by nervous influences.

An elevated blood cholesterol has long been considered to be of value in the diagnosis of hypothyroidism,[6,12] although Peters and Man[20] were careful to point out that it is even less specific than the basal metabolic rate. A recent study of serum lipids by Jones and co-workers[13] showed that the increase in serum lipids in hypothyroidism is in no way different from that so commonly seen in the metabolic disorders related to overeating and atherosclerosis.

In instances in which there was a sufficient specimen available, we did a cholesterol determination (Chart 2). A control group was taken at random (when there was a sufficient sample available) from the men whose PBI was in the high euthyroid range (6.0 to 8.0 mcgm. per 100 cc.). In the latter group of 138 men, there were 48 men with cholesterol content above 275 mg. per 100 cc. and six with a content below 200 mg. per 100 cc. Of 140 specimens from the group with low PBI, 39 contained more than 275 mg. of cholesterol per 100 cc., but it was some-

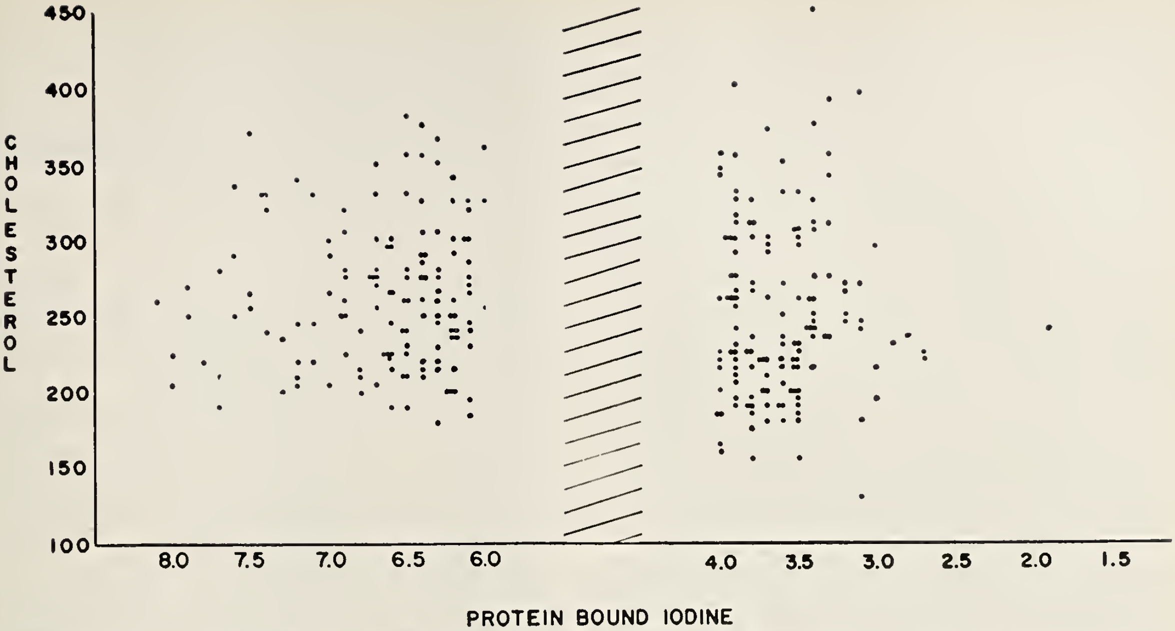

Chart 2.—Serum cholesterol (mg. per 100 cc.) in 138 men with serum protein-bound iodine above 6 micrograms per 100 cc. compared with serum cholesterol of 140 men with serum protein-bound iodine below 4 micrograms per 100 cc.

what surprising to note that 25 had cholesterol below 200 mg. per 100 cc. We have no data as regards the presence of pituitary disease and no additional data regarding thyroid status in this group.

In the selected group of 24 men (Table 1), there was only one with cholesterol under 200 mg. per 100 cc. He was the youngest, leanest man in the group (Case A). In eight other persons considered normal, the range was from 210 to 275 mg. per 100 cc. These included four of the six considered euthyroid or probably euthyroid. Fifteen were found to have cholesterol content above 275 mg. per 100 cc.

The lipoprotein and phospholipid studies provided no data different from that previously reported.[13,20] When total cholesterol is high, phospholipids are also high. The beta lipoproteins ranged from 77 to 91 per cent in 11 of the 12 determinations.

The only electrocardiographic abnormalities were bradycardia and occasional QT prolongation. The hemoglobin and sedimentation rate were within normal limits in all cases.

CLINICAL EVIDENCE OF HYPOTHYROIDISM

On appraisal of these laboratory tests, physical examinations and interviews in 24 men from the 52 in the "white collar" group with low PBI, 18 (75 per cent) were either probably or definitely hypothyroid. They were called probably hypothyroid (Class III) when the repeat PBI was low and the result of one of the other tests was strongly suggestive; they were called definitely hypothyroid (Class IV) when the repeat PBI was low and results of two other tests were highly suggestive. Four of the six adjudged euthyroid were so designated because a repeat PBI was within normal limits; the remaining two had low PBI on repeat test, but no other tests were suggestive of hypothyroidism. Most of these cases (and others as they are detected) will be reevaluated periodically.

If three quarters of the men with serum protein-bound iodine values of 4.0 micrograms or less per 100 cc. have clinical hypothyroidism, as this study would indicate, the total of American men in the middle-age group with this important deficiency exceeds one million.

Because of individual variation in homeostasis there is no consistent clinical picture in hypothyroidism. The conditions that influence individual response are multiple and subtle. A feeling of well-being may be produced because such adjustments obscure the lack of thyroxin, or vague illness may develop.

Epinephrine, in the presence of small amounts of thyroxin, but not in its total absence,[32] can be a potent synergist of its action. It is possible that it can compensate for thyroxin deficiency.

The effect of the 11-oxygenated adrenal steroids on intermediary metabolism are well documented. Much of their effect is such as to mask thyroxin deficiency. They are particularly capable of restoring normal oxygen consumption even in the absence of thyroxin and of potentiating the effect of small amounts of thyroxin.[5]

It is possible that certain persons have a reduced binding capacity (low thyroxin-binding globulin) in the serum or an accelerated rate of unbinding, so that a sufficient amount of free thyroxin is available to pass through the capillary walls. It is equally possible that there may be a reduced binding capacity in the extracellular fluid, making sufficient free thyroxin available. In nephrosis where binding capacity may be low, the PBI can be low[22] and yet the needs of the cells are met presumably because the necessary amount of free hormone is available. In normal pregnancy where there is a high thyroxin-binding globulin (TBG) and a high binding capacity,[23] a high PBI, even one of 12 micrograms per 100 cc., is not associated with hyperthyroidism; a PBI of 5.0 micrograms per 100 cc. is regarded as inadequate in pregnancy. There is as yet no demonstration of diminished TBG or increased binding capacity associated with hypothyroidism. Studies of this factor are in progress.

Still another possible explanation is that an enhanced enzymatic conversion of thyroxin to some other metabolically active substance may explain the presence of the normal PBI in these cases.

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Acute Gallbladder Disease

Experiences with 103 Consecutive Cases

PHILLIPS JOHNSON, *M.D.*, and MYRON B. CLOSE, *M.D.*, San Francisco

• One hundred and three cases of acute cholecystitis in patients ranging in age from 19 to 88 years were reviewed. Operation was done in all cases. Seventy per cent of the patients were women.

Primary cholecystectomy was done in 72.8 per cent of the series. Primary cholecystostomy was performed in the remainder, and one-fourth of these patients had a secondary cholecystectomy. No specific time, with relation to interval after onset of symptoms, was chosen for operation.

Jaundice was present in 14.5 per cent of patients at the time of admittance to hospital. Serum amylase was above normal in five of 27 patients on whom this determination was carried out. All five were women.

The gallbladder was perforated in 13 cases. Common duct exploration was done in 25 cases and in 12 of them stones were found.

The morbidity rate for the series was 11.6 per cent; the mortality rate 9.7 per cent.

The most frequent indication for abdominal operation after the age of sixty is disease of the biliary tract. The acute form of the disease in this older age group is associated with a distressingly high mortality rate. The gradual increase in the average age of our population has brought this problem more acutely into focus in the recent years. In the younger age groups the disease is predominantly one of females, but as aging progresses the proportion of males increases until at about 65 cholecystitis occurs with equal frequency in both sexes. Crump[3] observed that the incidence of stones also increases with age; half of all persons at the age of 70 have cholelithiasis. Among physicians dealing with this problem the conviction is growing that at the first signs of trouble a cholecystectomy should be performed before age and the inevitable progression of the disease lead to an operation of necessity on an infirm and debilitated patient. The mortality rate for elective operation before the age of 60 is less than 1 per cent; for the acute form of the disease after the age of 65 it is more than 10 per cent.

A great deal has been written relative to the proper time for surgical intervention in the acute form of the disease. Yet statistically there is little difference in mortality rate as between immediate and delayed operation. Advocates of immediate operation believe that the danger of rupture of the gallbladder or the chance of spreading infection outweighs the risk of operating on a seriously ill patient. Observers who believe delay of operation is better feel that there is less risk of damage to vital structures and of complications when operation is performed after the subsidence of the acute phase of the disease without the complicating factors of obscuring edema and inflammatory exudate. Almost all investigators agree that operation should be done if a patient does not improve under conservative management. Most observers stress that the time of operative intervention should be governed by factors in the individual case and none advocates that operation is so urgent that balancing electrolytes can be neglected. A wise surgeon's choice is also influenced by competence of the available assistance and anesthesia.

The 103 patients with acute cholecystitis whose cases are here presented for analysis entered the Stanford University Service of the San Francisco Hospital in the ten years 1945-1955 with acute abdominal pain and were observed because of diagnostic problems. Many of the patients had had previous attacks and might be considered as having an acute episode in the course of chronic cholecystitis. There were 85 white and 18 nonwhite patients, a race distribution approximately proportionate to the race distribution of all patients admitted to the hospital. The age range was from 19 to 88 years, with roughly one half of the patients less than 60 years of age. Seventy per cent of the total were women. There was one man and 22 women under 40 years of age. After the age of 40 the ratio was approximately two women to one man. Of the 73 women, 29 had had no pregnancies. Age and sex data by decades was as follows:

Age (Years)	Female	Male
0 to 20	1	0
20 to 29	16	0
30 to 39	5	1
40 to 49	12	5
50 to 59	7	8
60 to 69	15	5
70 to 79	11	8
80 to 89	6	3

Presented before the Section on General Surgery at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

CHOLECYSTOSTOMY AND CHOLECYSTECTOMY

Seventy-five of the patients had primary cholecystectomy. Twenty-eight had primary cholecystostomy and seven of the 28 had cholecystectomy. The remaining 21 were not subjected to a cholecystectomy because of the following reasons: Eight died postoperatively, five were lost to follow-up and three were treated without operation because of lack of symptoms. In five it was felt unwise to operate because of advanced age and/or other associated disease.

Interval Between Onset and Operation

In general our policy is to operate when the acute phase is subsiding. After gastric suction and antibiotic therapy are begun, an effort is made to correct electrolyte imbalance. Surgical intervention is undertaken promptly if the patient's condition deteriorates or does not improve under conservative management. If improvement continues, we operate when the symptoms have subsided. In certain cases in which the patient's condition was deemed excellent, cholecystectomy was done in the acute phase without further observation. We have not hesitated to operate in the face of the increased bacteriological growth in the gallbladder reported to occur from the fourth to tenth day after the onset of cholecystitis. We have found inflammatory edema which often persists for two to three weeks or longer not to be a serious obstacle. In a few patients it was noted that cholecystectomy would have been technically easier in the absence of inflammatory reaction, but the operation was completed without incident in each of these cases. In one patient who was operated on in the second week after the onset of acute cholecystitis, laceration of the common duct occurred and was noticed and repaired. No patient in the series returned with common duct stricture.

The time between onset of symptoms and operation was as follows:

Days of Symptoms	Number of Cholecystectomies	Number of Cholecystostomies	Total Operations
1	5	3	8
2	6	3	9
3 to 4	5	11	16
5 to 7	12	5	17
8 to 14	18	3	21
15 to 21	17	3	20
22 to 42	5	0	5
Over 42	7	0	7
Total	75	28	103

Eighty (78 per cent) of the patients were observed at operation to have stones in the gallbladder.

Fifteen patients were jaundiced on admission. Choledochotomy was performed in each instance. In one case, owing to the critical condition of the patient, drainage of the common duct was carried out without exploration of the duct. In ten of the remaining 14 cases stones were observed in the common duct at operation. In one patient jaundice developed a month following cholecystectomy which had been preceded by cholecystostomy. Upon reoperation a stone was recovered from the common duct.

Serum Amylase

Twenty-seven patients had serum amylase determinations. In our laboratory, over 200 units per 100 cc. is considered abnormal. Five of the 27, all women, had amylase content above that level. Brief descriptions of the cases follow:

1. Age 24 years; amylase 280 units; history of jaundice; dilated cystic duct; two small stones recovered from the common duct; pancreas normal.
2. Age 45 years; amylase 410 units; jaundiced; common duct and cystic duct slightly dilated; stones in gallbladder; no stones found in common duct; pancreas normal.
3. Age 23 years; amylase 790 units; jaundiced; numerous small stones in common duct; pancreas normal.
4. Age 69 years; amylase 1,100 units; jaundiced; no stones found in common duct; pancreas normal.
5. Age 26 years; amylase 1,810 units; jaundiced; gallbladder contained many stones; no stones found on exploration of slightly dilated common duct; pancreas normal.

It is interesting that in these five cases in which pancreatitis was suggested by an elevated serum amylase the pancreas appeared normal at the time of operation.

Perforations

Perforation of the gallbladder was noted in 13 cases. In three cases the perforation was into the free abdominal cavity, and profuse hemorrhage occurred in one of these three. In ten cases the area of perforation was walled off and peritonitis was localized. The walled off perforation was into the liver bed in two cases and in a third it was associated with a primary carcinoma of the gallbladder, the only carcinoma in the series. There were three deaths in the group in which perforation had taken place.

Exploration of the Common Duct

Twenty-five, or roughly one-fourth, of the patients were subjected to exploration of the common duct, and stones were found there in 12 cases. The indications for exploration and the incidence of them in the 25 cases were as follows: Jaundice or history of jaundice in 17 cases; dilated common duct, 12 cases; small stones in gallbladder, 10 cases; abnor-

TABLE 1.—*Data on Ten Cases in Which Patient Died*

Age	No. of Patients	Operation	Cause and Time of Death	Days from Onset of Symptoms to Operation
40-49	1	Cholecystostomy	Aspiration and death at operation	2
60-69	1	Cholecystectomy	Anuria; second postoperative day	7
70-79	3	Cholecystostomy	Peritonitis; first day	3
		Cholecystostomy	Coronary occlusion; second postoperative day	2
		Cholecystectomy	Pneumonia; fourth postoperative day	3
80-89	5	Cholecystostomy	Coronary occlusion; fourteenth postoperative day	3
		Cholecystostomy	Pulmonary embolism	1
		Cholecystostomy	Inanition; two months postoperatively	21
		Cholecystostomy	Pneumonia; fourth postoperative day	3
		Cholecystostomy	Cerebrovascular accident; sixth postoperative day	10

malities to palpation, 8 cases; pancreatitis (as indicated by elevated serum amylase), 5 cases.

X-ray Studies

Scout films of the abdomen were taken in 39 cases. In 27 of them no abnormalities were observed, in 12 radiopaque stones were visualized, and two showed a mass in the region of the gallbladder. Oral cholecystograms were done in 33 cases after subsidence of symptoms. Twenty-eight showed nonfunction of the gallbladder. At operation 22 of the patients in the nonfunctioning group had stones and six did not. Three of the total group showed poor function with radiolucent stones and two had normal function with nonopaque stones. Cholangiograms were done in six cases following cholecystostomy, and in three of them stones were demonstrated. T-tube or catheter drainage was provided in all but one of the cases in which common duct exploration was done. Cholangiograms were done by introducing the dye through the tubes usually on about the tenth to fourteenth postoperative day. If no obstruction was demonstrated, the tube was clamped for a day or two and then removed. Operative cholangiograms were not made in any case.

Morbidity

Postoperative complications occurred in 12 cases. There seemed to be no relationship between the time interval from the onset of symptoms and operation to the number or gravity of complications. Complications that occurred in two cases each were wound dehiscence, subphrenic abscess and superficial wound infection, and complications in one case each were abdominal abscess, postoperative fever of undetermined cause, thrombophlebitis, cholangitis and pancreatitis, laceration of common duct (immediately repaired) and shock, the operation having been stopped in this case and completed four days later.

Mortality

There were ten deaths, eight of which occurred following cholecystostomy in seriously ill patients. Only two of the patients who died were less than 70 years of age. Data on the cases in which death occurred are given in Table 1.

DISCUSSION

In spite of the fact that there is little difference in mortality and morbidity shown between early and late intervention, we believe that if treatment is determined on the basis of circumstances in each case, an improvement in results can be obtained. Our series does not show significant difference from other series with regard to morbidity and mortality, and it occurs to us that perhaps if the proponents of immediate operation and those who advocate postponement were to state their exceptions, it would turn out that their policies were tantamount to ours. In this day of antibiotics, whether to operate early or late must be dictated by the surgeon's ability to judge the changing clinical signs and symptoms. No surgeon wishes to operate on a seriously ill patient if he feels that the chances are that with delay he can approach the same problem under greatly improved conditions. On the other hand, no surgeon would deny a moribund patient a chance to live.

We have not found that the fourth to the tenth day is a critically unfavorable period for surgical intervention, nor do we feel that it is necessary to continue conservative treatment for two to three weeks if acute signs and symptoms have receded.

Seven of the patients who died were operated on within three days of the onset of the attack, and all with the exception of one had cholecystostomy because of the gravity of their condition. Two additional deaths occurred following cholecystostomy ten days and three weeks after onset of symptoms. In those cases operation was done because of progression of symptoms. One-third of the patients in the present series were operated upon between the fourth and fourteenth day. Of these only one, a woman in her sixties, died. The cause of death was anuria.

Exploration of the common duct was undertaken in approximately 25 per cent of the patients, which is about the same proportion as reported in most other series. Recently there has been a tendency to explore the duct in more cases. Stones were found in 46 per cent of the cases in which exploration was done. Ten of the 12 patients with common duct stones had jaundice. In four patients with jaundice no stones were found on exploration of the common duct.

It is interesting that all five patients with elevated amylase were women and at the time of operation no evidence of pancreatitis was found. It is known, of course, that there are conditions other than pancreatitis that will cause an increase in serum amylase.

We feel that more critical thought should be given to the proposition that asymptomatic cholelithiasis is an indication for operation without reference to age. Crump[3] observed that in 1,000 autopsies cholelithiasis was present in 25 per cent of subjects more than 40 years of age and in 50 per cent of those past 70 years. There are 11,250,000 people in this country over 65 years of age. Applying Crump's autopsy data would indicate the incidence of stones in this age group around 35 per cent. Assuming that over 10 per cent of these have already had cholecystectomy (which is certainly a high figure), there would then be in this age group 3,500,000 persons for whom cholecystectomy would be indicated. If the operative mortality were 3 per cent, as Glenn and Hays[7] reported it to be in patients over 65 years of age having cholecystectomy, there would be 105,000 operative deaths, not to mention morbidity. United States government statistics show 3.4 per cent of deaths in this age group are from gallbladder disease. Certainly a goodly number of those who died must have had symptoms before their final illness. It would seem that some consideration of the severity of symptoms should be required, as well as general assessment of the patient's condition, as prerequisites to any recommendation of a general operative program for removal of stones in all age groups; but because of the seriousness and frequency of cholecystopathy in aged persons, we feel that prophylactic removal of asymptomatic stones is indicated in the younger age groups in which surgical mortality associated with the operation is very low.

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Forensic Skiagraphy

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• Since roentgenograms are merely skiagraphs and not photographs, and since they are accordingly subject to erroneous interpretations or deductions, it would seem highly desirable that courts rely upon expert analysis of them, rather than demonstration of the negatives themselves. Such practice is customary in connection with clinical laboratory work, pathology, bacteriology and many other medical fields.

Interpretations of skiagraphs should be clear, complete and consistent.

THE LATE Judge George H. Buck of San Mateo County would not allow the introduction of roentgenograms into his court. He believed that they were not intelligible to the average juror, and that jurors could better be informed by hearing or reading the expert interpretation of the films made by persons qualified to do so. The good judge was far ahead of his time.

The ostensible purpose of presenting roentgenograms in court is to inform members of the jury, so that they may be able to draw conclusions from objective data. The actual purpose would often appear to be to impress them and sway their emotions. To the average laymen an x-ray is a "photo" and is commonly referred to as a picture or photograph. To him, it speaks for itself. The element of correct interpretation is seldom thought of.

An x-ray film is neither a photograph nor a picture; it is a shadow-graph, or skiagraph. A photograph or picture is a representation or reflection of what the eye actually sees, and may therefore be interpreted with reasonable ability by many persons. A radiograph is a representation of shadows resulting from light's penetrating of tissues of variable density; and familiarity with skiagraphy is required for proper interpretation of it. The physical facts were set out many years ago in the Encyclopaedia Britannica: "It is well to remember that radiography is the production of a shadow picture. The shadows exist . . . because x-rays are absorbed to different degrees by different media. If we were to radiograph a perfectly homogeneous piece of muscle or steel, we should obtain a photographic plate quite uniformly blackened because the x-ray absorption would be quite uniform. The absorption of x-rays by any material depends, firstly, upon the material itself, in general the higher its atomic weight the more absorbent it is—and, secondly, upon the penetrating power or wave-length of the x-rays."[3]

In 1901 an American pioneer, Dr. Francis Williams of Boston, stated: "Radiographs should be read . . . [by one] . . . who is trained in reading them. In cases of poisoning we do not expect the jury to interpret all the tests which the chemist has made, but the latter can make the meaning of those tests clear to the jury."[6]

The late distinguished Professor F. J. Baetjer of Johns Hopkins likewise emphasized: "There is no such thing as an x-ray picture. A roentgenogram is a projection upon a photographic plate of a series of shadows of varying density representing the various structures through which the rays have passed. The correctness of the diagnosis depends entirely upon the skill with which these various shadows are separated and interpreted. To interpret these shadows correctly one must know not only the appearance of the normal structure, but also the alterations that take place when there is a pathological process present. . . . Roentgenology is . . . a medical procedure based upon careful analysis and logical deductions from the shadows observed upon an x-ray plate, and translated into pathological terms. This means—and it cannot be too strongly emphasized—that the skill of a roentgenologist will vary directly with his medical knowledge; the value of the roentgenologist to the medical profession (and patient) will be based upon this fact and not upon his technical ability."[1]

COURT HEARINGS

Should x-ray films be shown in court? The average layman does not pretend to interpret a complex legal document; he consults or employs a lawyer to do this for him. The average lawyer does not try to interpret a complex problem in a special branch of law, such as admiralty or tax law; he consults an expert in that field. Similarly, many physicians do not try to interpret roentgenograms; they consult radiologists and seek their interpretation, combining the subsequent report with data obtained by clinical and other forms of examination. If many physicians do not attempt to interpret roentgenograms, how much less so should laymen?[2]

In my limited experience I have seen juries swayed

Presented before a Joint Meeting of the Sections on Orthopedics and Radiology at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

by gross misinterpretations of roentgenograms, the finding being dramatically "documented" by persons pointing to places on the films placed in an illuminator in the courtroom. The following are some examples:

1. A "fracture" simulated by an overlying muscle-margin shadow (notably in the case of a lumbar transverse process crossed by the edge of the psoas shadow).

2. "Silicosis" simulated by imperfect technique (chest roentgenograms made with large focal spots, or in partial expiration, or with patient motion).

3. "Pulmonary tuberculosis" simulated by local congestion, pleural thickening and other conditions.

4. Cervical spine "subluxations" and "compression fractures of lateral masses," due to slight angulation or rotation of the spine at the time of x-ray examination. (Lesions of this latter group are now frequently reported in persons alleged to have whip-lash injuries: Roentgenograms are marked with arrows, circles and lines, then displayed to an impressionable jury, often by an orthopedist-radiologist team, who readily convince the jury that dire injuries are present).

These errors could be minimized or obviated were expert reports introduced instead of roentgenograms. The experts themselves could be court appointed, if necessary. However, whether an expert's report alone, or his report and roentgenograms are introduced, the radiologist must identify himself, his specialty and his qualifications to the jury and judge. This unfortunately involves an immodest but quite essential listing of training, experience and qualifications. It involves identifying radiology as a branch of medicine. Finally, if called upon to interpret the films for or in front of the jury or judge, it involves calm appraisal of the findings and clear statement of opinion in as simple language as possible. Even after a brilliant presentation, a jury may be still a little puzzled as to the difference between a photographer and a roentgenologist, or between a radio repairman and a radiologist. Jurors need to be reminded as tactfully as possible that a radiologist *is* a physician, a doctor of medicine with three or more years of special training in the field, with limitation of practice to that field, and with better qualifications to interpret roentgenograms expertly than any other type of specialist or nonspecialist.

In many problems pertaining to the bones and the lungs, stereoscopic roentgenograms are essential for diagnosis; and since they cannot be viewed stereoscopically by twelve jurors at one time, essential points must be described rather than truly demonstrated.

It is highly desirable that radiologists and orthopedists agree on reasonably standard terminology for normal appearances, common anomalies, and common types of injury and disease. Terms such as "old" and "recent," "small" and "large," should carry qualifying phrases to indicate the precise meaning of the writer or speaker. Vertebral bodies and ribs should be numbered correctly. Osler emphasized that the practice of medicine is the practice of an art which consists largely in the balancing of probabilities. It is a science of uncertainty and an art of probability. Court hearings require a semblance of dogmatism or scientific statement which is often inconsistent with clinical truth. This point should be stressed on occasion.

SOME QUESTIONS

Your chairman* kindly listed some questions the answers to which he thought might be of interest and utility. These are as follows:

"How should the radiologist prepare a case?" Well, it seems to me that he should be eternally prepared. He is a specialist in the field. His technical work should be good and his interpretation should be skillful. His library, or that in a nearby institution, should supply refinements of information in suitable cases.

"Can you ask for additional examinations before trial?" One can ask for them, but they are often not obtainable. Furthermore, they are frequently not necessary for the problem at issue. Careful study of the available records, radiologic and otherwise, will usually permit the radiologist to testify adequately. But it is desirable that the study be deliberate, with proper viewing equipment in light-controlled rooms.

"Can you refuse to testify on films that you consider inadequate for any reason?" Well, except you are subpoenaed, I presume you can always refuse to testify on such. If you are subpoenaed, you can point out the fact that the films are technically or otherwise inadequate (with specific reasons for the opinion), and therefore the possibility of drawing valid conclusions is accordingly restricted.

"Do you attempt to show normal views or demonstrate examples of similar disease?" Depending on the degree of histrionics required in order to establish the maximum chance of justice being administered, I suppose that normal views or other projections might be brought to court and an attempt made to introduce them. It has not been customary in my limited experience.

"Do you accept magnafilms or minifilms as legitimate examinations?" Certainly. In selected cases magnified-image views may be of value; and in other cases minifilms, properly identified, may be shown both in standard size and by means of "blow-ups." It appears to be the consensus of scientific radiologic and orthopedic thought that magnified-image films seldom disclose bone lesions not visible in properly made orthodox films. Examination of the latter with a two-power hand lens will usually provide *all* of the information obtained by magnified-image views, with much less radiation exposure to the patient, and with less risk of fuzzy or distorted shadows which can lead to erroneous interpretations.[4,5]

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*Of the joint session of the Sections on Orthopedics and Radiology at the 86th Annual Session of the California Medical Association.

"Are you allowed any opportunity to discuss the case with other consultants before the trial?" Yes.

"Are you required to use the equipment made available in court, or can you bring some of your own?" It is my understanding that you can bring some of your own if you desire; however, it is my impression that the use of the ordinary viewbox available in court (aided perhaps by a blackboard sketch) is just as likely to result in a convincing demonstration as is the use of special equipment.

"How do you keep from lingual trespass when the law requires you to speak?" I should imagine the answer to this is that you should keep your feet firmly under the chair, and your tongue retracted and moved the minimum amount required for clarity of expression.

"When can you refuse to answer with a categorical yes or no?" You can refuse to answer with a categorical "yes" or "no" when the latter would result in an untruthful or misleading answer. One can always turn to the judge and request permission to qualify one's answer in order to render a clear and truthful reply.

"What factors determine the fee?" Well, they are many. The primary factor is justice to all concerned. If you are away from your office or hospital department for four hours, and you have thereby lost consultations which amounted to perhaps a hundred dollars in fees, you are certainly entitled to that sum plus necessary traveling expenses. If the loss has been greater or less, your fee could be reasonably greater or less. On the other hand, if you are testifying on behalf of a colleague in a case of alleged malpractice, it is customary to charge no fee. We are informed that some physicians appear in court on a contingency basis, such as 10 per cent of the settlement. The ethics of this would appear to be open to question.

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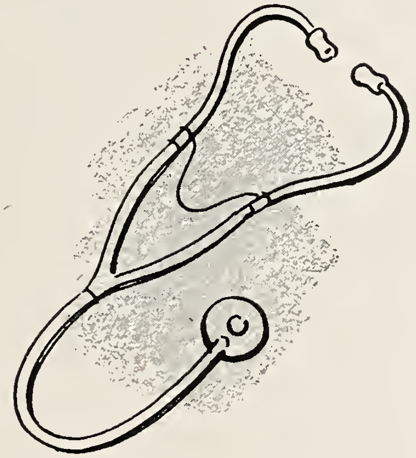

Electromyographic Examination in the Office

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• During a recent 12-month period, a total of 560 patients were referred for electromyographic examinations. They were sent by orthopedic surgeons, neurosurgeons, internists, general practitioners, neuropsychiatrists and practitioners of physical medicine. Orthopedic surgeons referred more than any other specialists.

Results of examination of patients referred because of suspicion of root compression were much more often negative than positive. Results were positive for the disease in all cases in which referral was because of suspicion of lower motor neuron disease, primary muscle disorders and upper motor neuron disease.

Short electromyographic reports that concentrate on interpreting the electromyographic data were found to be preferred by the referring physicians.

DURING THE PAST SEVERAL YEARS, electromyographic examinations have been requested more and more frequently by physicians in several specialties in the area about Los Angeles. It becomes pertinent, therefore, to turn attention to what specialists make the most use of electromyography, to the kinds of neurological lesions that cause them to refer patients most frequently, and to satisfactory methods of communicating electromyographic data to a referring physician.

All the patients discussed in this paper were examined in my private office during a recent period of 12 months. This point is mentioned because it appears likely that the results might be somewhat different if hospital patients were included. The recordings were made by inserting one insulated monopolar needle electrode into each of the various muscles examined. All examinations were done with the Meditron Electrograph Model 201 A.

For reasons that will become apparent later, data on patients having suspected root compression and peripheral nerve lesions are dealt with separately in this study rather than included under the broad category of lower motor neuron disease. It should further be pointed out that patients having suspected plexus lesions were included with the group having suspected peripheral nerve injuries. The category *lower motor neuron disease* in this study includes patients having either residual poliomyelitis or progressive spinal muscular atrophy, whereas the category *primary muscles disorders* includes patients having either myotonia or progressive muscular dystrophy.

The muscles most frequently examined electromyographically and the peripheral and segmental motor supply of each are shown in Table 1. These muscles are readily accessible for examination and their peripheral and segmental motor supply is quite accurately known. In addition, the electromyographic data obtained from the examination of these muscles enables one to express a satisfactory opinion concerning the various types of neurological lesions most frequently seen in the practice of the specialists who referred the patients for examination.

A total of 560 electromyographic examinations were done during the 12 months of this study. The

TABLE 1.—*Muscles Frequently Examined Electrographically*

ANTERIOR DIVISION MUSCLES

Upper Extremity	Peripheral Nerve	Root Supply Major	Root Supply Minor
Deltoid	Axillary	C-5	C-4, 6
Biceps	Musculocutaneous	C-6	C-5
Triceps	Radial	C-7	C-6
Brachioradialis	Radial	C-5	C-6
Flex. carpi radialis	Median	C-7	C-6, 8
Flex. carpi ulnaris	Ulnar	C-7	C-6
Abd. pollicis long	Radial	C-8	C-7
Opponens pollicis	Median	C-8	C-7
First dorsal interos.	Ulnar	C-8	C-7
Abd. digiti quinti	Ulnar	T-1	C-8

Lower Extremity	Peripheral Nerve	Root Supply Major	Root Supply Minor
Iliopsoas	Femoral	L-2	L-1, 3
Adductor longus	Obturator	L-3	L-2, 3
Vastus lateralis	Femoral	L-4	L-2, 3
Tibialis anterior	Peroneal	L-4	L-5
Ext. hallucis long	Peroneal	L-5	L-4
Peroneus longus	Peroneal	L-5	S-1
Gastrocnemius:			
Lateral head	Tibial	S-1	L-5, S-2
Medial head	Tibial	S-2	S-1
Lateral hamstring	Tibial	S-1	L-5, S-2
Medial hamstring	Tibial	L-5	L-4, S-1

POSTERIOR DIVISION MUSCLES

Neck			
Semi spinalis capitis	C-1	to	C-6
Semi spinalis cervicis	C-6	to	T-2

Low Back			
Multifidus	L-1	to	S-3

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Presented before the Section on Psychiatry and Neurology at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

results were positive for lesions in 181 cases (32.4 per cent) and negative in 379 cases (67.6 per cent).

Orthopedic surgeons referred more patients than any other specialists (Table 2) and practitioners of physical medicine relatively few (but it should be noted that many of the latter do electromyography themselves).

The most frequent reason for referral for electromyographic examination (Table 3) was suspicion of root compression, a fact that does not accord with a rather general assumption that electromyography is most often used for examination of patients with suspected peripheral nerve injuries.

Results of electromyographic examination of patients suspected of having root compression syndromes were negative much more frequently than positive, whereas for all other types of lesions, results were positive far more often than negative (Table 4). Results were positive for the disease in all cases of patients referred with suspected lower motor neuron disease, primary muscle disorders and upper motor neuron disease.

TABLE 2.—*Number of Electromyographic Examinations Requested by Various Specialists*

Specialty	No. of Patients	Per Cent of Total
Orthopedic surgery	267	47.6
Neurosurgery	161	28.7
Internal medicine	45	8.1
General practice	43	7.7
Neurology and psychiatry	27	4.8
Physical medicine	17	3.1

TABLE 3.—*Number of Patients Referred with Various Suspected Lesions*

Suspected Lesion	No. of Patients	Per Cent of Total
Root compression syndrome	446	79.7
Peripheral nerve injury	98	17.4
Lower motor neuron disease	6	1.1
Primary muscle disorder	6	1.1
Upper motor neuron disease	4	0.7

TABLE 4.—*Number of Positive and Negative Results of Electromyographic Examinations of Patients with Various Suspected Lesions*

Suspected Lesion	No. of Patients	Per Cent of Total
Root compression syndrome:		
Positive	85	15.2
Negative	361	64.5
Peripheral nerve injury:		
Positive	80	14.3
Negative	18	3.1
Lower motor neuron disease:		
Positive	6	1.1
Primary muscle disorder:		
Positive	6	1.1
Upper motor neuron disease:		
Positive	4	0.7

REPORTS TO REFERRING PHYSICIANS

I used to make long reports to the referring physicians, including not only the names of the various muscles examined, but also the electromyographic abnormalities noted for each muscle. However, upon learning that referring physicians usually do not desire so much detail, a simpler form of report, summarizing the examination and the results, was adopted.

To illustrate, suppose that a patient with suspected cervical root compression syndrome is referred for electromyographic examination. Then, after taking a rather careful history, suppose that the muscles supplied by the anterior and posterior primary divisions of the fourth cervical nerve through the first thoracic roots on the left were examined and no electromyographic abnormalities were elicited. The report to the referring physician would be as follows:

John Doe
111 A Street
City B, California
Age 40
Refer: Z. A. Brown, M.D.

ELECTROMYOGRAPH REPORT 3/4/57

Electromyograms of selected muscles supplied by the anterior and posterior primary divisions of the fourth cervical root through the first thoracic root on the left revealed no denervation or fasciculation activity in any of the areas sampled. Under voluntary effort, simple motor unit waves ranging in magnitude from 100 to 1,100 microvolts were elicited from all areas. There was no spontaneous motor unit activity on passive movement, and the needle resistance was normal in all areas.

Impression: There were no diagnostic abnormalities in the electromyograms of selected muscles supplied by the anterior primary and posterior primary divisions of the fourth cervical through the first thoracic roots on the left.

Comments: At present, I am unable to demonstrate anything in the electromyograms of selected muscles supplied by the anterior and posterior primary divisions of the fourth cervical root through the first thoracic root on the left which would account for this patient's complaints. If after you complete your studies nothing further is found, I shall be glad to reevaluate him at a later date and report any changes noted.

If, on the other hand, the electromyographic examination on this patient had revealed denervation activity in about 10 per cent of the areas sampled of the muscles supplied by the seventh cervical root, the report would be as follows:

Electromyograms of selected muscles supplied by the anterior and posterior primary divisions of the fourth cervical through the first thoracic roots on the left revealed denervation activity in about 10 per cent of the areas of the muscles supplied by the anterior and posterior primary divisions of the seventh cervical root. No fasciculation activity was elicited from any of the areas sampled. Under voluntary effort, simple motor unit waves ranging in magnitude from 100 to 1,100 microvolts were elicited from most areas. There was no spontaneous motor unit activity on passive movement, and the needle resistance was normal in all areas sampled.

Impression: The electromyographic findings are consistent with denervation activity in about 10 per cent of the areas of the muscles supplied by the anterior and posterior primary divisions of the seventh cervical root on the left.

Comments: Considering the history, the present electromyographic findings would be most consistent with a moderately severe root compression syndrome involving the seventh cervical root on the left.

1060 East Green Street, Pasadena.

For Your Patients—

A Personal Message to YOU:

As your personal physician I consider it both a privilege and a matter of duty to be available in case of an emergency. Consequently, I thought it would be a good precaution if—on this gummed paper which can be pasted in your telephone book or medicine cabinet—I listed the numbers where I can be reached at all times. They are:

______________________	______________________
OFFICE	HOME

Sincerely,

______________________________, M.D.

MESSAGE NO. 2. Attractive, postcard-size leaflets printed on gummed paper, you to fill in telephone numbers and your signature. Available in any quantity, at no charge, as another service to CMA members. Please order by Message Number from CMA, PR Department, 450 Sutter, San Francisco.

Influenza Vaccine, Asian Strain

Reactions Following Its Use in Adults

JOSEPH F. SADUSK, JR., *M.D.*, and GEORGE NESCHE, *M.D.*, Oakland

• A study of reactions following influenza vaccine inoculation of 327 employees of Peralta Hospital, 55 men and 272 women, showed a very low value for significant or severe reactions. The reaction rate as observed with the present monovalent vaccine containing 200 CCA units of Asian strain, Type A influenza virus, was considerably lower than that reported with previous polyvalent vaccines containing up to 1,400 or 1,500 CCA units of total virus content.

The absenteeism rate was 1.1 per cent for women, nil for men.

The incidence of reactions was much greater in women than in men. Local reactions such as pain, swelling, or redness at the site of injection occurred in 29.1 per cent of men and 35.7 per cent of women. The incidence of systemic reactions —fever, aching, chilliness, headache, nausea and vomiting—was 3.6 per cent in men and 8.8 per cent in women. About 9 per cent of men and 30 per cent of women had both local and systemic reaction. Some 58 per cent of men and 25 per cent of women had no reaction.

The greater majority of reactions appeared within five hours after inoculation with influenza vaccine.

In adults the prevention of anaphylactic reactions due to the small amount of egg protein in influenza vaccine, can be accomplished by screening for history of hypersensitivity to egg, chicken or chicken feather. In questionable cases, intradermal testing can be done.

The reaction rate observed in this study for the present influenza vaccine was so low that it ought not deter immunization.

RECOGNIZING the distinct possibility of a serious outbreak of influenza in the San Francisco Bay Area during the fall of 1957, the Medical Advisory Board of Peralta Hospital, Oakland, on July 31, 1957, appointed a committee consisting of Dr. George Nesche, Dr. Joseph F. Sadusk, Jr., and Dr. Arthur Twiss to continuously survey the situation and delegated to that group authority to organize and direct an immunization program against influenza if and when appropriate. In view of the similarity existing between the present rapid spread of influenza on a worldwide basis and the situation existing in 1918, the committee put into effect on August 30, 1957, a preplanned program for inoculation of all Peralta Hospital employees with influenza vaccine, Asian strain.

Since no data is available in the literature to indicate the reaction rate to be expected from the currently used influenza vaccine, the Peralta immunization program was planned to yield specific information on this point. A report of that information is the purpose of this paper.

Reactions from influenza vaccine[7] were outlined in the 1940's and were found to be comparable to those seen with typhoid vaccine—annoying but not serious. The local reaction consisted of pain, swelling and redness at the site of inoculation; the systemic reaction was characterized by fever, headache, chilliness, generalized aching, nausea and vomiting.

While some early reports[1,3] suggested that methods of production of the vaccine might be the important factor in reaction rates, an exhaustive study on influenza vaccine reactions in 4,127 vaccinated persons by Sadusk, Bassett and Meddaugh[6] in 1949 demonstrated that the frequency and severity of reactions was not related to the method of production but rather to the total virus content of the vaccine. These investigators also noted that the important variable in reaction rate and severity of reaction was that of sex. The reaction rate in the female group was found to be twice that observed in the male group, while the severity of reactions observed was four times as high in the female as in the male group. It was further found that (1) previous inoculation with influenza vaccine did not predispose to a higher rate of reactions, (2) the use of acetylsalicylic acid or APC (acetylsalicylic acid, phenacetin, and caffeine) tablets did not significantly reduce the reaction rate, (3) employees giving a history of hay fever or asthma showed no higher reaction rate than other persons in the vaccinated group, and (4) there was need for screening out egg-sensitive persons. Finally, in the clerical group studied, the reaction rate was significantly higher in the 15 to 24 year group than in the groups 25 years of age or over, where the reaction rate was constant. This difference was particularly pronounced in the female part of the group.

The influenza vaccines used by Sadusk, Bassett and Meddaugh[6] contained approximately 1,400 CCA

From Peralta Hospital, Oakland 9.
Submitted September 24, 1957.

INFLUENZA ANALYSIS REPORT No. 1

.... Type of work .... Division ....
Last name First Middle

Please complete this report and return to your supervisor *5 days after* your influenza inoculation

(PLACE AN (X) IN THE BOX OR BOXES WHICH APPLY TO YOU)

Sex:		Col. 1
Male	☐	1
Female	☐	2

Age:		Col. 2
15 to 19	☐	1
20 to 24	☐	2
25 to 29	☐	3
30 to 34	☐	4
35 to 39	☐	5
40 to 44	☐	6
45 to 49	☐	7
50 to 54	☐	8
55 to 59	☐	9
60 to 64	☐	X
65 to 69	☐	Y

Were you ill as a result of inoculation?		Col. 3
Yes	☐	1
No	☐	2

Were you absent from work as a result?		Col. 4
Yes	☐	1
No	☐	2

Number of days absent?		Col. 5
1 day	☐	1
2 days	☐	2
3 days	☐	3
More than 3	☐	4

Check the following symptoms only if present after inoculation.		Col. 6
Fever	☐	6-1
Aching	☐	7-1
Chilliness	☐	8-1
Headache	☐	9-1
Pain at site of injection	☐	10-1
Swelling at site of injection	☐	11-1
Redness at site of injection	☐	12-1
Nausea	☐	13-1
Vomiting	☐	14-1

If you had a reaction, what time did the first symptom appear after injection?		
1 to 2 hours	☐	15-1
3 to 5 hours	☐	16-1
6 to 8 hours	☐	17-1
9 to 12 hours	☐	18-1
12 to 24 hours	☐	19-1
Later	☐	20-1

DO NOT WRITE BELOW THIS LINE

Vaccine:		Col. 21
No. 1	☐	1
No. 2	☐	2
No. 3	☐	3
No. 4	☐	4

Skin test done:		Col. 22
Yes	☐	1
No	☐	2

Skin test:		Col. 23
Positive	☐	
Negative	☐	

Sample of form given to vaccinated persons for reporting of reactions

units per milliliter and produced an absenteeism rate of approximately 2 per cent in males and 8 per cent in females, absences usually being for one or two days. Local reaction was noted in approximately 50 per cent of males and 70 per cent of females; systemic reactions in approximately 25 per cent of males and 47 per cent of females.

Since the current influenza vaccine approved by the U. S. Public Health Service contains a total virus content of only 200 CCA units of the Asian strain of influenza virus, one would expect the reaction rate and absenteeism rate to be less. This was found to be so in the present study.

METHODS

Subjects and questionnaire forms. During the study period, there were 493 employees at Peralta Hospital, consisting of certain staff physicians, administrative staff, nurses, orderlies, maids, laundry personnel, maintenance staff and others. Immunization was offered on a voluntary basis to this group and each person accepting such inoculation was required to present himself at the appointed time with a completed questionnaire. The important questions asked were as follows:

1. Have you any allergic sensitivity to chicken? eggs? chicken feathers?
2. Do you have asthma?
3. Do you have any allergic condition?

The applicants were interviewed by a staff physician regarding hypersensitivity to egg or other widely used substances. If such allergic reaction was confirmed or suspected, vaccination of the applicant was deferred until a later date to permit intradermal skin testing. If there was no evidence for such sensitivity, the physician signed an approval form which the employee presented to the inoculating nurse. Deep subcutaneous injection of 1 ml. of the vaccine was made in the deltoid or triceps area. A syringe containing 0.25 to 0.50 ml. of 1:1000 aqueous epinephrine for intravenous use was available at the inoculating station for immediate use should an anaphylactic reaction appear. After the person had received the vaccine, he was given a reaction report form (see page 302) with instructions to return the completed form after five days. These forms, coded for punch card use, formed the basis for the present study. They will also play a role in a study of the efficacy of the vaccine, should an epidemic of influenza appear.

On August 30, September 1 and September 11, 1957, 410 employees were immunized as described above. Skin testing of those with a positive or questionable history for sensitivity to egg was done by intradermal injection of 0.02 ml. of a 1:10 dilution of the vaccine in normal saline solution. The reaction was observed in 15 minutes; and then, after inoculation, the subject was required to wait at the inoculating station for another 15 minutes before being released.

Influenza vaccine. The vaccine used in this study was a monovalent influenza virus vaccine, containing 200 CCA units per ml. of Type A Asian Strain, prepared by Merck, Sharp & Dohme, and identified as Lot No. 40175 B-1. The product is protamine concentrated and refined.

Protocol data were not made available by Merck, Sharp & Dohme but such information as could be obtained indicated that the vaccine was made up to yield an "average CCA/ml. value of 200."

RESULTS

Return of questionnaires. Data concerning the return of questionnaires (Table 1) indicate that sufficient forms were returned to be probably representative of the group inoculated. A total of 79.8 per cent of the employees vaccinated returned forms —83.4 per cent of the men and 79.2 per cent of the women. In all, a total of 327 employees out of 410 returned forms.

Type of reactions. Table 2 presents an analysis of broad types of reaction and shows the much higher incidence in women than in men. By personal interview of inoculated persons taken at random it was learned that the reactions were generally quite mild.

In Table 3 are presented data for the specific components of the local and systemic reactions. Here again, a pronounced difference by sex is readily apparent.

TABLE 1.—*Number of Employees Inoculated with Influenza Vaccine and Returning Questionnaire Forms, by Sex*

Sex	Number Inoculated	Number Forms Returned	Per Cent Returned
Male	66	55	83.4
Female	344	272	79.2
Total	410	327	79.8

TABLE 2.—*Broad Types of Reaction Following Influenza Vaccine Inoculation in 327 Employees, of Whom 55 Were Men and 272 Women*

	Male		Female	
	Number	Per Cent	Number	Per Cent
Local reaction*	16	29.1	97	35.7
Systemic reaction†	2	3.6	24	8.8
Combined reaction‡	5	9.1	82	30.1
No reaction	32	58.2	69	25.4
Total injected	55	100.0	272	100.0

*Local pain, swelling or redness at the site of injection.

†Purely systemic reaction consisting of fever, aching, chilliness, headache, nausea, and vomiting.

‡Combination of both local and systemic reactions.

TABLE 3.—*Specific Reactions Following Influenza Vaccine Inoculation of 327 Employees, 55 Men and 272 Women*

	Male		Female	
	Number	Per Cent	Number	Per Cent
Local reaction:				
Pain	14	25.5	120	44.1
Swelling	7	12.7	57	20.9
Redness	8	14.5	103	37.9
Systemic reaction:				
Fever	2	3.6	14	5.1
Aching	1	1.8	65	23.9
Chilliness	2	3.6	27	9.9
Headache	4	7.3	59	21.7
Nausea	3	5.4	18	6.6
Vomiting	0	0	4	1.5

The incidence of all local reactions was almost twice as high in females as in males. For systemic reactions, also, there was about a twofold difference, except for an even wider difference in the incidence of aching and headache. It should also be noted that none of the men reported vomiting, as against 1.5 per cent of the women.

In Table 4 are outlined the broad categories of local, systemic, and combined reactions analyzed by age groups for male and female.

With regard to the male group, it is obvious that the numbers listed are not statistically valid and little or nothing can be said about this group. With regard to the females, in the numbers in each category and age group were so small that percentage data are not recorded. It is of interest, however, that the age group differences that were noted in the previous study[6] are not apparent in the present one —that is, the previously observed higher incidence of reactions in females 15 to 24 years of age than in

TABLE 4.—*Number of Reactions Analyzed, by Sex and Age Group, as to Whether the Reaction Was Local, Systemic or Combined*

Age Group	Male				Female				Number Injected	
	Local*	Systemic†	Combined‡	None	Local*	Systemic†	Combined‡	None	Male	Female
15 to 24 years	6	0	1	3	10	3	8	8	10	29
25 to 34 years	4	1	2	4	20	3	12	5	11	40
35 to 44 years	2	0	0	4	26	5	17	16	6	64
45 to 54 years	3	0	1	4	15	7	23	21	8	66
55 to 64 years	1	1	1	13	20	4	21	13	16	58
64 years	0	0	0	4	5	1	0	2	4	8
Not stated	0	0	0	0	1	1	1	4	0	7
Total	16	2	5	32	97	24	82	69	55	272

*Local pain, swelling or redness at the site of injection.

†Purely systemic reaction consisting of fever, aching, chilliness, headache, nausea, and vomiting.

‡Combination of both local and systemic reactions.

TABLE 5.—*Employees' Reply to Question as to "Illness" After Inoculation*

Age Group	Male			Female			Number Inoculated
	Ill*	Not Ill	Total	Ill*	Not Ill	Total	Male and Female Total
15 to 24 years	0	10	10	1	28	29	39
25 to 34 years	2	9	11	4	36	40	51
35 to 44 years	0	6	6	5	59	64	70
45 to 54 years	0	8	8	9	57	66	74
55 to 64 years	0	16	16	5	53	58	74
64 years	0	4	4	0	8	8	12
Not stated	0	0	0	0	7	7	7
Total	2	52	55	24	248	272	327

*Affirmative answer of employees to question, "Were you ill as a result of influenza vaccine inoculation?"

those 25 years of age and over, was not observed in the present study.

Severity of reactions. In Table 5 are presented detailed data on the number of persons who reported an answer to the question, "Were you ill as a result of inoculation?" Again, the answers were few, but in the case of the female group, in which the number of reports was large enough to approach statistical validity, there was no significant difference in "illness" rate between the younger and the older groups. One of the striking points is the relative absense of "illness" in the age group over 64 years, but here again the number of persons available for analysis is small.

The severity of reactions may be approached from two aspects, namely, the employees' response to the question "were you ill as a result of inoculation?" and his or her absence from work as a result of the inoculation. Such data are reported in Table 6 with a division of data by sex. Only 1.8 per cent of men reported that they were "ill" as a result of the inoculation, as compared with 9.6 per cent of the women. As to the more strict definition for severity of reaction—that is, absence from work, the data in Table 6 shows that only 1.1 per cent of women were absent as a result of the inoculation. Of the three who were absent, one was absent for one day, one for two days, and one for three days. It should be noted that one of the three women who were absent from work reported an illness beginning four days after inoculation, consisting principally of systemic symptoms such as fever, aching, nausea and vomiting. It is of course highly probable that this was an intercurrent nonspecific gastrointestinal infection and was not due to the influenza inoculation.

TABLE 6.—*Severity of Reaction (Subjective "Illness" and Absenteeism) Following Influenza Vaccine Inoculation of 327 Employees, of Whom 55 Were Men and 272 Women*

	Male		Female	
	Number	Per Cent	Number	Per Cent
"Illness"*	1	1.8	26‡	9.6
Absence from work	0†	....	3‡	1.1
1 day	0	....	1	....
2 days	0	....	1	....
3 days	0	....	1	....
More than 3 days	0	....	0	....
Not stated	0	....	0	....

*Employees who gave an affirmative reply to the question, "Were you ill as a result of influenza vaccine inoculation?"

†One man (not included in table) reported an illness on seventh day after inoculation, characterized by fever, chilliness and headache, and necessitating a total of threee days' absence.

‡One of the women reported an illness beginning four days after inoculation, with fever, aching, chilliness, nausea and vomiting. She is included in the table, but the illness probably was not a reaction to influenza vaccine.

One man, who is not reported in this table, indicated that on the seventh day after inoculation he had an illness characterized by fever, chilliness and headache which necessitated three days' absence from work. It is quite clear that such an illness beginning seven days after inoculation could not possibly be ascribed to the influenza vaccine.

Time of appearance of reaction. It will be noted in Table 7 that the great majority of reactions from influenza vaccine appeared within five hours after injection, and indeed, the greater proportion appeared within one to two hours.

It is to be noted that the reaction rate dropped sharply after the fifth hour, but began to rise between 12 and 24 hours after inoculation. It is of course extremely dubious whether the 9.6 per cent of total male and female reactions appearing longer than 24 hours after the inoculation were owing to the vaccine. Here, one strongly suspects that intercurrent acute respiratory diseases play a role. It can be stated that throughout the Oakland area, before, during and after the time of the vaccinations here reported, a nonspecific acute respiratory disease appeared to be in higher than ordinary incidence.

Possible allergy to influenza vaccine. As was noted in previous studies[2,3,4,5] by several investigators, possible allergic reactions to influenza virus must be considered. Since the vaccine is prepared from embryonated chicken eggs, it necessarily contains egg protein which, although in small quantity, could theoretically cause anaphylactic shock in person who was hypersensitive to egg protein.

Consequently, the physicians who interviewed the persons subjecting themselves to influenza immunization were requested to be very conservative with regard to the possibility of sensitivity to egg or chicken. If they had doubts in any case they were to defer vaccination until skin testing could be carried out.

As will be noted in Table 8, inoculation was initially deferred for intradermal skin testing in 21 employees, four men and 17 women. Seven employees did not return for skin testing. None of the 14 who did return had positive reaction to the intradermal skin test, as previously described, and all were inoculated. No reactions, either immediate or delayed, were reported.

DISCUSSION

The data presented in the foregoing tables would indicate that all types of reaction rates and severity of reaction as determined either by reported "illness" or absenteeism are significantly lower than previously reported for polyvalent influenza vaccines.

TABLE 7.—*Time of Appearance of Reaction Following Inoculations with Influenza Vaccine in 135 Employees Returning Information on This Point*

Time of Appearance	Male		Female		Male and Female	
	No.	Per Cent	No.	Per Cent	No.	Per Cent
1 to 2 hours....	4	28.6	50	41.4	54	40.0
3 to 5 hours....	5	35.7	25	20.6	30	22.2
6 to 8 hours....	2	14.3	8	6.6	10	7.4
9 to 12 hours....	0	....	7	5.8	7	5.2
12 to 24 hours....	1	7.2	20	16.5	21	15.6
More than 24 hrs.	2*	14.2	11	9.1	13	9.6
Total	14	100.0	121	100.0	135	100.0

*One additional man (not included in table) reported appearance of "reaction" on seventh day after inoculation.

TABLE 8.—*Number of Persons with History Suspicious of Allergic Sensitivity Among 327 Employees 155 Men, 272 Women) Inoculated with Influenza Vaccine*

	Male	Female	Total
Inoculation initially deferred for skin testing..................................	4	17	21
Skin tested with negative test and were inoculated	2	12	14
Did not return for skin test..................	2	5	7

Since it is now generally accepted that the reaction rate is directly proportional to the amount of total virus content, one would necessarily expect that the reaction rate with the present vaccine containing only 200 CCA units per ml. would be definitely lower than previous reaction rates with influenza vaccine of polyvalent type and containing up to 1,400 or 1,500 CCA units per ml.

The pronounced difference in reaction rates between men and women accords with previous observations.[1,6] The reason for the difference is not clear and the subject deserves further study.

It would appear that the danger of troublesome reactions from the present influenza vaccine is extremely small. In addition, the absenteeism rate is nil for males and approximately 1 per cent for females. Consequently, in large-scale immunization programs among hospital personnel and important public servants such as police, firemen, and utility employees, the fear that reactions will prevent full efficiency of the force is to be discounted, particularly so when one assumes a morbidity rate of 20 per cent or more during an influenza epidemic with an individual employee time loss of from five to fourteen days due to influenza.

While no evidence was found for serious acute allergic manifestations in this study, this possible danger must be kept in mind. Influenza vaccination, both on an individual and a mass basis, should clearly take into account the need for appropriate screening procedures to defer or reject persons with hypersensitivity to egg. If one is in doubt concerning an applicant for immunization, skin testing should be carried out. The present study and the one previously reported by Sadusk, Bassett, and Meddaugh[6] clearly indicated that, contrary to suggestions by Curphey,[2] by Ratner and Untracht,[4,5] and by several of the brochures the manufacturers of influenza vaccine include with each vial, routine testing of all persons for egg sensitivity is not necessary. Careful questioning as to symptoms of allergic reaction to eggs, chicken or chicken feathers should be sufficient as a screening procedure for adults. It is to be emphasized that this recommendation may not necessarily apply to children, for the incidence of sensitivity to egg[4,5] seems to be significantly higher in children than in adults.

459 Thirtieth Street, Oakland 9 (Sadusk).

ACKNOWLEDGMENTS

This study would not have been possible without the aid and cooperation of Dr. Arthur Twiss, Mr. George U. Wood and his staff in processing forms and reports, Mrs. Judy Collins in setting up and supervising the inoculation stations, and Doctors John Brandon, William Leedy, Oscar Powell, and Edgar Rosen with the egg-allergy screening.

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For Your Patients—

A Personal Message to YOU:

As your personal physician I consider it both a privilege and a matter of duty to be available in case of an emergency. But, being only human you can understand that there are times when I may not be on call. I might be at a medical meeting outside the city, on a bit of a vacation—or even ill.

Consequently, I thought it would be a good precaution if—on this gummed paper which you can paste in your telephone book or in your medicine cabinet—I listed numbers where I can be reached at all times. Also, the number of a capable associate as an added service. Here they are:

OFFICE	HOME	MY DOCTOR
OFFICE	HOME	ASSOCIATE

Sincerely,

_______________, M.D.

MESSAGE NO. 1. Attractive, postcard-size leaflets printed on gummed paper, you to fill in telephone numbers and your signature. Available in any quantity, at no charge, as another service to CMA members. Please order by Message Number from CMA, PR Department, 450 Sutter, San Francisco.

Postoperative Bile Peritonitis

JOHN R. RYDELL, *M.D.*, Santa Barbara

• Bile peritonitis may occur after open operations on the biliary tract or following needle biopsy of the liver.

Usually it is secondary to rupture of the common duct caused by overlooked common duct stone.

Sterile intraperitoneal bile collections may be tolerated fairly well for long periods.

Placing drains in the abdomen after biliary tract operations helps prevent dangerous accumulations of bile.

Patients with extensive bile peritonitis should be operated upon as soon as possible. Ideally, the operation should include drainage of the abdomen and repair of any underlying pathological cause, but the condition of the patient may be so poor that only drainage can be carried out at the moment.

For many years surgeons have been aware of the dangers of extravasation of bile. Fortunately this complication is rare, although there are many different mechanisms that may cause it. Bile peritonitis occasionally occurs following surgical procedures on the liver and biliary passages. In the medical literature surprisingly little attention has been paid to this problem. Unless promptly treated, such intraperitoneal bile collections can become extremely extensive and occasionally contribute to death.

ETIOLOGY

Congenital biliary tract defects may rarely necessitate an emergency operation on an infant to relieve bile peritonitis. Byrne and Bottomley[6] cited the example of a three-weeks-old child whose peritoneal cavity was filled with bile. The source of the leak was a rupture of a congenital cyst in the region of the cystic duct. A somewhat more common cause of bile peritonitis is traumatic rupture of the liver, bile ducts or gallbladder. Norgore[20] collected reports of 32 such cases from the literature. Usually, of course, the extravasation of blood greatly exceeds in importance the spillage of bile. Neoplasms of the extrahepatic biliary passages may rarely grow in such a manner that perforation is caused by necrosis or increased intraductal pressure, with resultant leakage of bile.

Inflammatory lesions of the biliary passages are the commonest causes of bile peritonitis. Many cases have been reported of free bile in the peritoneal cavity without demonstrable perforation of the biliary tract. This so-called "biliary dew" is seen at any age. Hindmarsh[12] reported the case of a 22-month-old infant with free intraperitoneal bile and no visible abnormalities in the biliary system. The patient responded to surgical drainage, and subsequent cholecystograms were normal. Cope[8] reported several cases of diffuse bile peritonitis without obvious perforation. Several other investigators described similar experiences. In many such instances careful study revealed tiny perforations, sometimes microscopic in size, to be the source of leakage.

Fletcher and Ravdin[9] emphasized that perforation of an acutely inflamed gallbladder is uncommon. In a study of 2,807 cases of cholecystectomy over a 15-year period, they classified 600 as acute cholecystitis, and in only 44 of the latter did perforation occur. In 25 cases it was subacute perforation with pericholecystic abscess, in 14, chronic perforation with cholecystenteric fistula. In only five patients was there acute free perforation resulting in large amounts of bile and pus in the peritoneal cavity without evidence of localization. It has been my experience also that acute free perforation of the gallbladder is rare; I have seen only two such cases in recent years.

Rupture of the common bile duct is also occasionally the cause of bile peritonitis, even in cases in which there has been no previous operation. Chodoff and Levin[7] collected reports of 14 cases of spontaneous perforation of the common duct. Usually a common duct stone is present, but Hart[11] and Moore[16] independently presented cases of spontaneous common duct perforation without associated calculi or trauma or previous operation.

Postoperative bile peritonitis is likewise a rare entity. In a review of the literature, reports of fewer than two dozen cases were found in which sufficient bile extravasation occurred in the postoperative period to require a second laparotomy.

BILE PERITONITIS FOLLOWING OPEN OPERATION ON THE BILIARY TRACT

Postoperative bile peritonitis occurs most commonly following open operations on the liver, gallbladder or bile ducts. The ordinary mechanism is

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Presented before the Section on General Surgery at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

postcholecystectomy rupture of the common bile duct due to increased intraductal pressure resulting from an overlooked common duct stone. Wolfson and Levine[24] called attention to this problem by presenting reports of three cases of bile peritonitis following common duct exploration. In these cases reoperation was done and the abdomen was drained of large amounts of bile 32, 55, and 72 days after operation, respectively. In only one of them was the presence of residual common duct stone determined. Wolfson and Levine expressed belief that the usual cause of this complication was a subacute infectious process at the site of the choledochostomy. Newburger[18] collected from the literature reports of nine cases of confirmed rupture of the bile duct following biliary operation which consisted of a choledochostomy in all but one case. All the patients were female, and all but one died of the complication. In a case observed by Newberger, reexploration of the abdomen was required 102 days after cholecystectomy and common duct exploration. Some 2,000 cc. of bile was evacuated from the peritoneal cavity, but the patient died four days later. Brunschwig[4] reported two cases of postcholecystectomy rupture of the common bile duct, in both of which residual common duct stones had been overlooked. One patient died without opportunity for surgical correction of bile peritonitis, but the other recovered following laparotomy with drainage of a large amount of bile from the subhepatic area and removal of the retained stone.

McLaughlin[14] presented an excellent review of the problem of bile peritonitis when he summarized eight cases. In three of them, reoperation to drain bile collections was necessary. Two of the three illustrate the risk of performing cholecystectomy without drainage of the abdomen; in both a secondary operation was necessary in the early postoperative period to evacuate intraperitoneal bile. McLaughlin emphasized that increased pressure within the biliary tree from overlooked common duct stones is the most frequent factor in production of bile peritonitis. Maguire[13] reported a similar problem in a 57-year-old man who had to have two further operations to drain large intraperitoneal bile collections after cholecystectomy, despite drainage of the abdomen after the original operation. In the case of this patient the common duct ruptured on the fifth postoperative day, and months later a repair of a common duct stricture was necessary.

Postoperative bile peritonitis is occasionally confused with bile-stained peritonitis following gastrointestinal anastomosis. Bell and Warden[2] reported a case of a 39-year-old man who underwent laparotomy 48 hours after gastric resection for jejunal ulcer. No gross leak was found but 2,000 cc. of bile-colored fluid were evacuated from the abdomen, although no operation had been done on the biliary passages. Apparently the color of the peritoneal exudate was due to leakage of the intestinal content.

Following is a report of a case of bile peritonitis probably due to overlooked common duct stone with leakage from a cystic duct stump.

CASE 1. A 71-year-old woman underwent elective cholecystectomy for gallstones in January 1954. At the same time repair of a small ventral hernia was done. Several medium sized gallstones were present but there was no evidence of acute cholecystitis. No aberrant ducts were noted, and the common duct was not opened. A Penrose drain was used. On the sixth postoperative day a large amount of bile drained through the dressings, soaking the binder and sheets. At this time a low-grade fever appeared, and it persisted. Bile drainage ceased at the time the drain was removed on the tenth postoperative day. The patient continued to have nausea, upper abdominal pain and distention. Occasional administration of narcotics was necessary. Although improvement was slight, the patient was sent home by ambulance on the seventeenth day after operation, partly at her own request. Bile was regularly present to some degree in the stools. Because of vomiting, weakness and increasing abdominal distention, she was readmitted to the hospital 31 days after operation. The next day a large swelling, apparently a collection of fluid, was easily visible in the upper abdomen. The patient complained of severe pain. Nasogastric suction did not relieve the distention. X-ray films of the abdomen showed haziness throughout the upper abdomen consistent with a large collection of fluid. The position of the Levine tube indicated that the stomach was remarkably displaced to the left and inferiorly by extrinsic pressure. There was no evidence of jaundice. The temperature varied from 99 to 100°F. Hemoglobin content was 9.9 gm. per 100 cc. of blood. Leukocytes numbered 13,650 per cu. mm.—70 per cent polymorphonuclear cells. Sedimentation rate was 93 mm. in one hour.

Because of the general progressive deterioration of the condition of the patient, laparotomy was done 33 days after the first operation. Local procaine block was used for anesthesia. The preoperative impression was of either pancreatic cyst or intraperitoneal collection of bile. When the abdomen was opened by a short left rectus incision, a great amount of intraperitoneal bile was seen. Approximately 6,000 cc. of it was aspirated over a 20-minute period. Immediately the patient felt better. Two large drainage tubes were put into the peritoneal cavity. Exploration of the biliary passages was precluded by the poor general condition of the patient. She was discharged to her home two weeks after operation. Bile drainage was still profuse, requiring several dressings a day. The pyloric obstruction and vomiting were promptly relieved by the operation. A moderate external biliary fistula persisted for several months but the patient never became jaundiced and the stools were bile-colored. Common duct exploration was advised to find out whether there might be a retained common duct stone, but permission was not obtained. After four months the fistula closed and the patient continued in good health.

The following case was one of bile peritonitis probably due to spasm of the sphincter of Oddi with increased intraductal pressure and leakage from the site of a T-tube.*

Case 2. A 35-year-old man was admitted to hospital October 17, 1956, because of pain in the lower back and upper abdomen. In a myelogram the following day no abnormality was noted. A cholecystogram showed a poorly functioning gallbladder containing several opaque stones. Cholecystectomy and choledochostomy were done as an elective procedure. The patient was not icteric. The common duct did not appear dilated but a small catheter was inserted into the cystic duct stump and was threaded into the common duct. Diodrast® was injected and an operative cholangiogram was made. Because of two small shadows appearing in the common duct, it was opened and explored directly. No stones were found and no pancreatitis or evidence of obstruction was seen. Two more operative cholangiograms were then made, the dye being introduced through a No. 10 (French) T-tube, and the final set of films showed no filling defects. It was assumed the shadows seen earlier were due to air bubbles. The gallbladder was thin-walled and was removed. It contained two stones, each about a half inch in diameter. No aberrant ducts were noted. On the seventh postoperative day another cholangiogram was made. No abnormalities were seen; the dye entered the duodenum promptly, and the caliber of the ductal system was normal. The following day the T-tube was uneventfully removed. Several hours later, during the night, the patient had extreme pain in the right upper quadrant with radiation into the scapular area. The pain was described as constant and knife-like, causing much restlessness and muscle guarding in the right upper quadrant of the abdomen. There was no drainage from the T-tube tract. The following day the patient complained of pleuritic pain, but there was no fever at any time during the day. Progressive improvement took place and he was discharged from the hospital the eleventh postoperative day, three days after removal of the T-tube. At this time the hemoglobin was 15.7 gm. per 100 cc. and leukocytes numbered 19,650 per cu. mm., 76 per cent of them polymorphonuclear cells. The patient was readmitted to the hospital the following day because of severe pain in the upper abdomen, associated with tenderness in the right upper quadrant. The skin was yellow. Leukocytes numbered 34,150 per cu. mm.—89 per cent polymorphonuclear. Serum bilirubin was 5.9 mg. per 100 cc. The alkaline phosphatase was 9.6 units (normal 1.5 to 4.0 units). Cephalin flocculation at 48 hours was negative.

X-ray films at this time showed an inflammatory process in the right lower lung field with compression atelectasis and some pleural effusion. The right hemidiaphragm was elevated.

During the next three days the temperature ranged from 100 to 101°F. and the pulse rate from 100 to 120. The general condition of the patient deteriorated and the abdomen became distended. On the sixteenth postoperative day, a right subcostal incision was made and a large collection of bile—about 1,000 cc.—was seen in the right upper quadrant, both above and below the liver. Several large Penrose drains were placed in this region and the abdomen was closed. No further exploring was done and no point of bile leakage was found. The patient's condition remained critical for several days but recovery gradually occurred, and the temperature was almost normal at the end of two weeks. A moderate amount of bile drainage persisted through the drains for several days. When the last drain was removed 12 days after the second operation, there was very little exudate from the operative field. The patient remained well.

As no calculi were found at the time of common duct exploration, and considering the normal cholangiograms, it seems unlikely that bile leakage might have been brought about by an overlooked common duct stone.

BILE PERITONITIS FOLLOWING NEEDLE BIOPSY OF THE LIVER

In rare instances bile peritonitis may occur as a complication following needle biopsy of the liver, a procedure that has come into wide use during the last decade. As with trauma to the liver from accidental means, the risk of hemorrhage is far more important and occurs more frequently than that due to bile extravasation.

Terry[23] in 1952 assessed the risk of this procedure in evaluating over 10,000 needle biopsies recorded in the literature. He computed a mortality of 0.12 per cent and an incidence of major complications of 0.32 per cent. In a series of cases in which he had carried out the procedure, severe bile peritonitis occurred in one instance. The patient was a 63-year-old man and laparotomy was done on the thirteenth day to drain 4,500 cc. of bile from the abdominal cavity. The patient recovered. Zamcheck and Klausenstock[25] in 1953 made an exhaustive survey of all reported complications of needle biopsy of the liver up to that year, reviewing more than 20,000 cases. It was their opinion that with the procedure properly done, the mortality rate was less than 0.1 per cent. Bile peritonitis was thought to be the cause in only four of 39 deaths. Schiff[22] recently observed a case in which bile peritonitis following needle biopsy caused death. In none of these cases was the diagnosis made sufficiently early to permit laparotomy for drainage. Gallison and Skinner[10] demonstrated clearly in a photomicrograph how the biopsy needle produced a fistulous tract 1.5 cm. long from a dilated intrahepatic duct. The patient died in seven days with 8,000 cc. of bile lying within the peritoneal cavity. In that case, carcinoma of the ampulla was found to be the cause of obstructive jaundice that had led to needle biopsy.

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*Courtesy of Dr. W. H. Stephenson.

The following is a report of a case of extensive bile peritonitis, following needle biopsy of the liver, in which laparotomy was necessary for drainage.

CASE 3. A 76-year-old retired businessman had had cholecystectomy for gallstones 25 years previously. He had been quite well from then until about a year before the present illness, when he began having bouts of upper abdominal pain, fever and light jaundice, lasting usually two or three days. Upon physical examination, the liver was observed to be moderately enlarged. No abnormality was noted on x-ray examination of the stomach except for prominent angulation between the first and second portions of the duodenum, presumably the result of previous cholecystectomy. The blood sedimentation rate was 105 mm. in one hour. Total protein content was 8.1 gm. per 100 cc., of which albumin was 2.9 and globulin 5.2 gm. The serum bilirubin was 4.0 mg. per 100 cc. A subcostal liver biopsy was done with a Vim-Silverman needle. Two hours later the patient complained of pain at the biopsy site, and throughout the rest of the day dull pain persisted in the upper abdomen. Over the next four days the abdomen became progressively more distended and paralytic ileus developed. The leukocyte content of the blood increased from 6,250 to 24,250 per cu. mm. in 48 hours and the proportion of polymorphonuclear cells was 86 per cent. The temperature gradually increased to 101°F. A Harris tube did not decompress the abdomen, which became progressively more distended and tense.

Procaine infiltration of the abdominal wall was used for anesthesia because of the patient's semicomatose critical condition. When the abdomen was opened, bile gushed from it. The amount removed was estimated at over a liter and a half. A tube enterostomy was carried out to relieve some of the intestinal distention. Several Penrose drains were placed in the peritoneal cavity. Exploration of the biliary passages was precluded by the general condition of the patient. After a brief postoperative rally the patient lapsed into hepatic coma and in three days died of liver failure.

At autopsy an entirely unique situation was found. The common bile duct had undergone a complete stricture formation subsequent to the cholecystectomy that had been done 25 years previously. The dilated hepatic ducts at the hilus of the liver had spontaneously ruptured into the duodenum, and this small hepaticoduodenal fistula had functioned well enough to enable the patient to lead a normal life for over two decades. Numerous dilated intrahepatic bile ducts were present, and the biopsy needle had pierced one of these ducts near the surface of the left lobe of the liver; and this opening was the source of the extensive extravasation of bile. Severe portal cirrhosis was also present.

DISCUSSION

The three cases here reported illustrate the dangers of bile peritonitis. The fact that one of the patients survived despite accumulation of six liters of bile within the peritoneal cavity would indicate that sterile bile is not extremely dangerous. In certain cases, bile can be tolerated reasonably well in the abdominal cavity for long periods. Miles and Jeck[15] among others, observed a similar situation and, in a study of the problem, carried out experiments with dogs. They expressed belief that the toxicity of the bile salts is one of the most important factors leading to death from pile peritonitis. Collections of bile can cause susceptibility to superimposed infection, they observed, due to the local necrotizing effect of bile on the peritoneum and viscera; and prognosis turned in great degree upon whether or not infection was present. Shock from fluid loss into the extravascular space may be of importance in certain cases, the investigators noted. The lethal dose of sterile bile injected intraperitoneally into dogs varied from 20 to 40 cc. per kilogram of body weight.

When bile is spilled into the peritoneal cavity, the resulting inflammatory reaction will produce exudate from the peritoneum, which dilutes the bile. As was pointed out by Ravdin,[21] bile ascites must be differentiated from bile peritonitis. A relatively small amount of bile can discolor a large volume of peritoneal effusion. Bowers[3] reported the daily removal, by paracentesis, of 5 to 6 liters of bile-colored fluid, obviously a far greater volume than the daily total bile production by the liver.

Much debate has taken place with respect to the importance of drainage of the abdomen after cholecystectomy. Some skilled surgeons rarely place drains in such cases, but the majority are agreed that the use of drains affords additional protection against postoperative bile leakage. I routinely place drains in all cases of biliary tract operation.

Possible causes of postoperative bile extravasation include rupture of the common duct due to obstruction or infection, leakage from accessory hepatic ducts, failure to drain the common duct after exploration, unnoticed trauma to the bile ducts, slippage of the cystic duct ligature, and partial dislodgment of the T-tube. A significant contribution was made by Allen and Wallace,[1] who emphasized that a watertight closure of the common duct is extremely difficult to obtain. Bile drained into the dressing in all but one of 28 cases in which the common duct was closed tightly without T-tube or catheter drainage. Without free flow to the outside, some degree of bile peritonitis would invariably occur.

The following cases illustrate the potential creation of bile peritonitis, but adequate drainage permitted the bile to localize its exit as an external biliary fistula. Omitting drainage would certainly have resulted in serious complications and possible disaster.

One was a case of postcholecystectomy rupture of the common duct due to an overlooked stone.

Case 4. A 65-year-old housewife with severe diabetes and Paget's disease, had cholecystectomy for subacute cholecystitis with cholelithiasis. The operation was more difficult than usual because of inflammation and an anomalous double hepatic artery which overlay the common duct. She had three attacks of biliary colic in the immediate postoperative period, associated with mild icterus. The Penrose drain was removed in one week as there was no unusual drainage. The patient went home nine days after the operation. On the twentieth postoperative day, bile began to drain through the former site of the Penrose drain, and a complete external biliary fistula developed. A fistulogram was made by injecting Diodrast and an impacted stone was outlined at the ampulla of Vater and a second stone in the hepatic duct. Choledochostomy was done and the two stones were removed after a transduodenal sphincterotomy. The patient recovered.

The other case was one of prolonged external biliary fistula from an accessory hepatic duct after cholecystectomy.

Case 5. A 44-year-old housewife had cholecystectomy because of a tense subacutely inflamed gallbladder containing multiple stones. The common duct was not explored. An accessory hepatic duct that originated at the gallbladder bed in the liver and entered the gallbladder near the cystic duct was ligated with catgut. Convalescence was normal until the eighth postoperative day, 24 hours after the Penrose drain had been removed. Suddenly bile gushed from the drainage tract which continued as an incomplete, although large, external biliary fistula. The patient went home on the seventeenth postoperative day. Profuse bile drainage continued for nearly two months, and then stopped rather suddenly just when preparations were being made to reopen the abdomen. During this time bile was also entering the intestinal tract, indicating there was no obstruction of the common duct. The patient thereafter was in good health.

In both of these cases, generalized bile peritonitis might have developed if drains had not been placed after cholecystectomy. Fortunately the drains were left in place a full week after operation, because the bile leak did not occur until the eighth day in one, and the twentieth day in the other. It is quite likely that bile extravasation of minor degree often stops spontaneously. Drainage of enough bile to saturate the dressings for a few days after cholecystectomy is not unusual and does no harm unless large amounts stay within the abdomen. Usually drainage of this kind is owing to leakage from tiny accessory hepatic ducts that were severed fortuitously as the gallbladder is being removed from its bed in the liver.

DIAGNOSIS AND TREATMENT

Whenever a patient who has had biliary tract operation does not progress satisfactorily in the immediate postoperative period, the possibility of bile peritonitis should be considered. Undoubtedly many more cases occur than are reported. The symptoms of increasing abdominal distention, nausea and dull pain in the upper abdomen should warn of the possible extravasation of bile. Usually the number of leukocytes increases rapidly and out of proportion with the low grade fever. If a tube has been placed in the abdomen, it should be loosened to ascertain that it is not damming rather than draining. If fluid formation is considered likely in the postoperative period, it is well to place a catheter inside the Penrose drain to facilitate drainage. When doubt exists as to the diagnosis, aspiration of material from the abdomen with syringe and needle might provide a clue. X-ray visualization will occasionally show an elevated hemidiaphragm and other signs suggestive of subphrenic abscess, possibly due to bile leakage.

Bile extravasation in the postoperative period will usually not be manifest for a week or more. In most cases in which reopening of the abdomen becomes necessary, the operation is done from two weeks to two months after the initial operation. Some of this delay may be due to failure to recognize the possibility that extravasation of bile is taking place; and delay may be disastrous.

It seems clear that patients with extensive bile peritonitis should have surgical drainage at the earliest possible date. Often the general condition of the patient is so poor that only drainage of the abdomen can be done and exploration of the biliary passages must be put off. Simple abdominal drainage is technically easy and can usually be carried out with only local anesthesia. It will relieve the emergency and in some cases may be all that is necessary. However, in most instances further exploration of the bile ducts must be done to find the source of leakage and the underlying cause.

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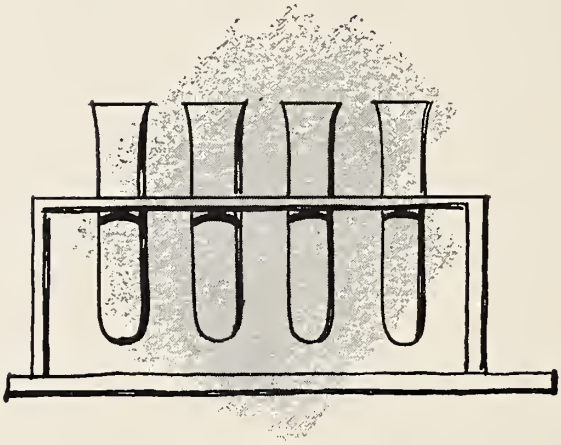

Staphylococcic Infections in Children

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• Over 50 per cent of all staphylococcic infections are hospital-acquired. In 92 per cent of hospital-acquired infection, the organism is resistant to penicillin, and in 74 per cent to tetracycline.

Chloramphenicol, bacitracin, novobiocin and erythromycin are the drugs of choice for therapy. There was good correlation between clinical response and antibiotic therapy selected on the basis of results of organism sensitivity tests done by the agar diffusion technique.

Cross-resistance among the tetracyclines averaged 94 per cent. Erythromycin and magnamycin showed similar pattern.

Mortality in infants less than two months old was 7.8 per cent as compared with 1.1 per cent in older children. Death was related either to pneumonia or to septicemia in the ten fatalities recorded in this series.

THE STARTLING INCREASE in infections due to Staphylococcus pyogenes var. aureus during the last few years is a matter of great concern to all physicians. Epidemics in nurseries for newborn babies[3,4,15,16,18] and operative wound infections[1,14,19] due to this organism are being encountered with alarming frequency and emphasize the need for strict aseptic technique in the care of patients. A single phage type of staphylococcus (52 B/42 E/44 A/81)[2,17] accounts for the majority of these infections. The ability of this organism to adjust to its antibiotic environment is one of the major problems in medicine today. In order to evaluate the gravity of this problem, all cases of staphylococcic infection observed at the Los Angeles Childrens Hospital on which sensitivity tests were made were reviewed.

MATERIAL AND METHOD

This report is based on 55 cases in 1952, 77 in 1954 and 348 in 1956. The age of the children ranged from 2 days to 15 years. Fifty-one per cent were boys and three-fourths were Caucasian.

Sensitivity tests by the agar plate diffusion method were performed only on coagulase-positive strains obtained from clinically ill patients. Ninety-one per cent of the specimens tested were obtained from patients in hospital.

During the years studied there was a sixfold increase in the incidence of staphylococcic infection. Fifty-one per cent could be traced to hospital contact on the wards or to repeated visits to the outpatient department. Chart 1 shows that in these patients, one-third of the infections were in operative wounds. Forty-two per cent of these patients were less than two months of age, a fact which illustrates the hazard of exposure to hospital strains.

The incidence was uniform throughout infancy and childhood. In spite of nursery epidemics due to this organism, only 18.3 per cent of the 480 patients in the cases reviewed were under two months of age. However, infection among the very young was more severe and occasionally accompanied by gangrene and septicemia. Breast abscesses, pyoderma, parotitis and pneumonia were common. Chronic disease such as fibrocystic disease of the pancreas or leukemia predisposed older children to infection with this organism.

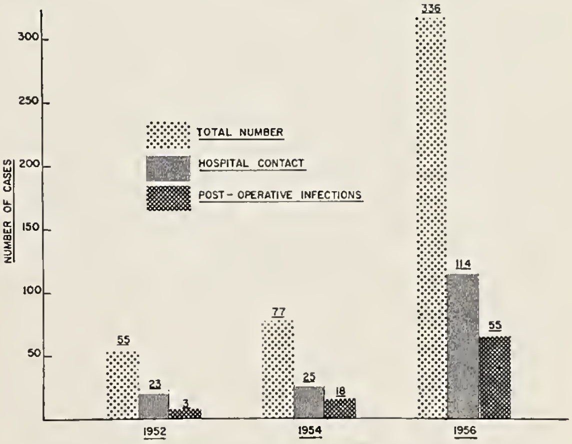

Chart 1.—Fifty-one per cent of the 468 staphylococcic infections originated from contact with hospital strains.

SOURCE OF CULTURE AND RESISTANCE PATTERN

The respiratory tract, the blood and the subcutaneous tissues were the three chief sources of material from which staphylococci grew. Table 1 shows that in comparison with 1952 and 1954 staphylococcic infection appeared somewhat more frequently in postoperative wounds and subcutaneous infections in 1956. Among the hospital-acquired infections,

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Supported in part by a grant from Pfizer Laboratories, Brooklyn, N. Y.

Presented before the Section on Pediatrics at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

TABLE 1.—*Source of Material That Grew Staphylococci on Culture in 480 Cases in 1952, 1954 and 1956, Showing Uniform Increase in Total Number, but Changes in Proportions*

	1952		1954		1956	
Source	Cases	Per Cent	Cases	Per Cent	Cases	Per Cent
Respiratory tract	25	45.5	28	36.4	156	44.0
Blood	8	14.5	6	7.8	23	6.0
Postoperative wounds	5	9.1	13	16.8	53	15.0
Abscesses	4	7.3	12	15.6	64	20.0
Miscellaneous	13	23.6	18	23.4	52	15.0
Total	55	100	77	100	348	100

92 per cent were resistant to penicillin and 74 per cent to tetracycline (Chart 2). Resistance of the organism to these two drugs was least in the case of patients who had had neither previous contact with hospital strains of staphylococci nor antibiotic therapy before admission. In the latter group the organism was resistant to penicillin in 54 per cent of cases and to tetracycline in 35 per cent. In Chart 3 the comparison of the years 1952, 1954 and 1956 shows a continued high resistance to penicillin. Staphylococcic resistance to chloramphenicol and erythromycin was much less frequent, probably reflecting the restricted usage of these drugs. Resistance was most likely to develop in patients with protracted debilitating disease; and repeated cultures from such sources developed decided resistance to penicillin and tetracycline (Table 2). Resistance of the organism to all antibiotics was unusual; only 5 per cent of the 348 cultures made during 1956 were resistant to penicillin, tetracycline, erythromycin and chloramphenicol. Cross resistance to the tetracyclines occurred in 94.5 per cent of cases (Chart 4) and to erythromycin and magnamycin in 94 per cent.

CLINICAL RESULTS

Sensitivity tests, drug therapy and clinical course were studied in all 480 cases. These were divided into three groups. The first was composed of 326 patients treated with an antibiotic to which the infecting organism was very sensitive; and in this group 86 per cent improved rapidly and were cured. The second group was made up of 80 children who were treated with an antibiotic to which the organism was resistant; 41.5 per cent improved, and in these patients fever persisted longer and recovery was slower. The third group consisted of 74 patients not treated with any antibiotic. In this group the infections were relatively mild, such as postoperative wound infections, pyoderma and subcutaneous abscesses. The recovery rate was 53.5 per cent—a better rate than that for the group with drug-resistant infection treated with antibiotics.

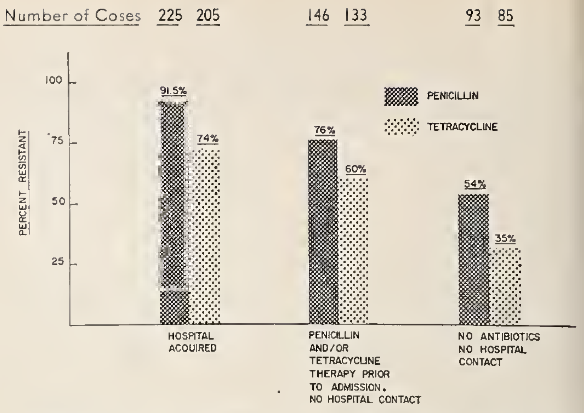

Chart 2.—The resistance to penicillin and tetracycline in three groups of patients: The first group had hospital-acquired infections; the second group is composed of patients treated with antibiotics before admission, and the third group consists of patients with neither hospital exposure nor previous antibiotic therapy.

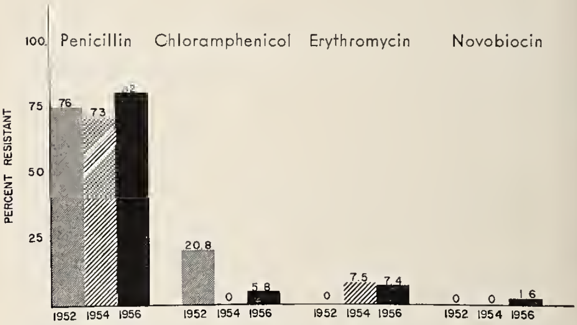

Chart 3.—The changing pattern of resistance of staphylococci to penicillin, chloramphenicol, erythromycin and novobiocin in the years 1952, 1954 and 1956.

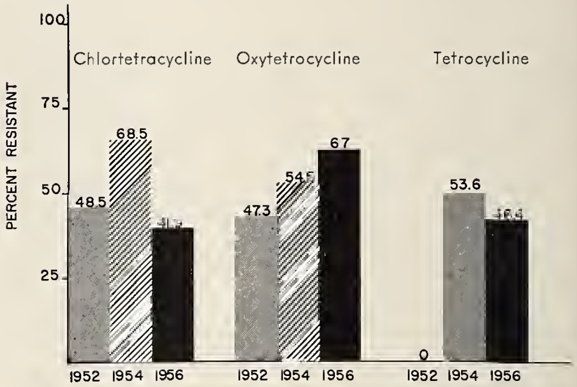

Chart 4.—The changing pattern of staphylococcic resistance to tetracycline with 94.5 per cent cross-resistance.

In contrast to cases of infection with other organisms, clinical relapse was common. Premature cessation of therapy was the most frequent cause; and three to six weeks of therapy was often necessary to cure systemic infections such as pneumonia, osteomyelitis and septicemia. In the severe cases at

TABLE 2.—*Increasing Resistance of Staphylococci to Various Antibiotics with Repetitive Cultures from the Same Source*

Name of Antibiotic	First Culture Total Resist. No.	First Culture Total Resist. Per Cent	Second Culture Total Resist. No.	Second Culture Total Resist. Per Cent	Third Culture Total Resist. No.	Third Culture Total Resist. Per Cent	Fourth Culture Total Resist. No.	Fourth Culture Total Resist. Per Cent
Penicillin	179	85	38	95	15	100	3	100
Tetracycline	181	56	40	77.6	15	87	3	100
Erythromycin	183	3.3	36	13.8	12	25	3	67
Chloramphenicol	175	5.1	38	14.5	15	6.7	3	67

least two and sometimes three drugs to which the organism was sensitive were used. Chloramphenicol together with erythromycin or bacitracin were the drugs most frequently used. With this plan of therapy only two of the 23 infants with pneumonia and empyema died in 1956; and in one of these the correct diagnosis was not made and the infant did not receive adequate antibiotic therapy. Death was invariably associated with either septicemia or pneumonia (Table 3). Six of the ten deaths from primary staphylococcic infection happened in infants less than two months of age; and in four of these cases the infection was acquired in the hospital. The mortality rate in this group under two months of age was 7.8 per cent, as compared with a rate of 1.1 per cent in older children.

Infections associated with chronic illness were difficult to treat. Among children with diseases such as leukemia, malignant growth or fibrocystic of the pancreas, 49 died with associated staphylococcic infection. These patients died in spite of the use of antibiotics to which the infecting strains of staphylococci were sensitive.

DISCUSSION

The resistance to antibiotics of staphylococci in any community is determined by the local use of antibiotics.[9,10,11,12,21] Penicillin and tetracycline are the two antibiotics most frequently prescribed. Chloramphenicol has not been extensively used since its hematologic toxicity was widely reported in 1952. This, undoubtedly, is the reason for the low resistance rate to chloramphenicol of staphylococci cultured in our community. The low incidence of resistance to erythromycin, novobiocin and bacitracin can also be so ascribed. It is imperative that physicians restrict the use of antibiotics to patients with specific bacterial infection.[6] It is wise not to use antibiotics in the treatment of mild respiratory infections[7] or as prophylactic medication in surgical procedures.[5] Weinstein[20] suggested that prophylactic administration of antibiotics for measles is unwarranted, and Lepper[13] arrived at the same conclusion with respect to patients subjected to tracheotomy. Finland[8] obtained similar results in a study on premature infants. Since many of these infections are acquired through hospital contact, it is vitally important to reduce such contacts to a minimum. Newborn infants are particularly subject to infection and should be discharged from the nursery as soon as possible. Elective surgical procedures in infants should be delayed whenever possible, and strict adherence to aseptic technique with gown, mask and hand-washing are mandatory for every physician working with small infants.

TABLE 3.—*Pathological Diagnosis in Ten Patients in Whom Staphylococcic Infection Was the Cause of Death*

	No. Cases
Septicemia	2
Subacute bacterial endocarditis	2
Pneumonia, empyema, and pyopneumothorax	2
Pneumonia, empyema, and congenital heart disease	2
Meningitis	1
Pneumonia, empyema, and pericarditis	1

Sensitivity tests are of great value when performed by the disc method in a reliable laboratory. The clinical results reported here clearly demonstrate that patients receiving antibiotics to which their infecting organism was sensitive improved more rapidly than children treated with drugs to which the organism was resistant. In fact the data presented suggested that therapy with a resistant drug delays clinical improvement.

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Infectious Polyneuritis

A Disease to Be Distinguished from Poliomyelitis

RICHARD N. BAUM, *M.D.*, Los Angeles

• Fourteen cases of infectious polyneuritis of a kind not previously reported in this country were observed in Los Angeles—three of them in hospital personnel. The clinical features at onset were headache, fever, dizziness of peculiar order, weakness and aching muscles. Motor weakness then developed, more severe in the proximal muscle groups and more often in the lower extremity. Sensory changes were also present. In two cases, debility was so severe as to necessitate prolonged inactivity. The condition was observed in 13 females (one a child) and one man. The age range was 10 to 65 years.

Similarity of this illness to one reported in England in 1954 was noted.

Treatment included administration of multiple vitamins, B_{12} and thiamine chloride. Recovery occurred in from one week to over ten months.

In the spring and early summer of 1956, an illness was observed with clinical features resembling those of poliomyelitis in many ways. In June a report of seven cases was presented at a staff meeting at Cedars of Lebanon Hospital. In the next few weeks an additional four patients with the illness were observed. While a fuller report was being prepared for publication, the syndrome seemed to pass away. Hence the report, having lost much of its import, was set aside. However, three cases in which symptoms closely resembled the syndrome of 1956 were observed in the spring of 1957, making the report once more of significance.

The disease is a polyneuritis with predominantly motor changes, but often with sensory changes also. At a time when physicians generally are on the alert for poliomyelitis, it becomes important to present a condition which must be considered in the differential diagnosis of an infectious disease associated with muscular weakness.

In the series of cases in 1956 all but one of the 11 patients had a clear-cut history of an infection, with symptoms closely paralleling those of the then current "bug of the month"—fever, malaise, dizziness, and possibly headache, cough, nausea and vomiting. The illness was in general protracted, the symptoms—other than the muscular weakness—lasting for from one to three weeks. Both motor and sensory deficits—which lasted up to several months—were noted usually during the acute phase but also as long as two months after the original illness. The dizziness, which was so often mentioned, was described as a light-headed, blacking out feeling when walking fast, bending over, or turning corners—more giddiness than true vertigo.

REPORT OF 11 CASES IN 1956

Case 1. A 26-year-old woman physiotherapist was seen in April, 1956, with complaint of fever, a slightly productive cough, malaise, dizziness and a fainting episode followed by a severe headache. On the fifth day of the illness, and the day following the fainting episode, she mentioned feeling generally weak. On examination it was observed that there was definite weakness of the extensors, flexors and rotators of the right hip, of the flexors and extensors of the right knee and of the right plantar flexor. The patient was put in hospital with a tentative diagnosis of neuronitis, but the possibility of poliomyelitis weighed heavily on both patient and physician. However, the cerebrospinal fluid protein and cell content were not abnormal. Nor were there abnormalities as to blood examination, urinalysis, heterophil agglutinins or x-ray films of the spine. Slight but definite sensory changes in the form of hypesthesia of the right leg and perianal region were noted. They persisted for a week. After three days in the hospital, weakness of the left leg, particularly of the hip flexors, was noted for the first time. By the sixth day in hospital, muscle strength began to improve in the right leg. A few days later improvement began in the left also. As strength returned, physiotherapy in the form of active and passive exercise was begun. The left leg soon was normal again and over the ensuing three months the right leg gradually returned to normal. During that time the patient often complained of aching pains in the right thigh when she overdid. During convalescence there was an episode of sciatic neuralgia which lasted two days.

An electromyogram made two weeks after onset showed polyphasic motor units, and another made five weeks later showed denervation fibrillations as well—phenomena consistent with peripheral neuritis.

Case 2. In early April, quite by accident, winging of the right scapula was noted in a 24-year-old nurse who worked in the department of rehabilitation. On questioning she recalled that in late February she

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Submitted August 1, 1957.

had noted malaise, weakness, dizziness, slight fever and pain between the scapulae. Upon examination, weakness of the right deltoid muscle, serratus anterior and biceps was noted. Hypesthesia was observed about the right shoulder. In May, slight bilateral foot drop was first noted by the patient and at that time weakness of all movements of both lower extremities—about the hips, knees and ankles—was noted. An electromyogram of the right deltoid and biceps showed polyphasic motor units and denervation fibrillations—conditions consistent with peripheral neuritis. Over the next three months there was a progressive return to normal muscle strength.

Case 3. A 35-year-old drug detail man, with no history of preceding illness, had rather sudden onset of pain on the right side of the neck going down the shoulder and into the right arm. Later the patient noticed easy tiring of the arm. Upon examination, it was observed that there was decided weakness of the right deltoid and lesser weakness of the biceps, the serratus anterior and the dorsiflexors of the hand.

Case 4. The patient, a housewife, 39 years of age, who had had poliomyelitis in 1947, was observed because of illness that began with the sudden onset of dizziness, nausea, vomiting, severe headache, especially when standing, and generalized weakness. Upon examination pronounced weakness was noted in all muscle groups tested, including those innervated by cranial nerves. There was hypesthesia over most of the body. The right arm and leg (in which there was slight residual weakness from poliomyelitis) as well as the left arm and leg, were so weak that motion could be restrained by the examiner's using only two fingers to hold the various limbs. Pains in the legs, arms and back became a pronounced complaint. Headache lasted a week and dizziness persisted several weeks.

Three weeks after the onset of symptoms the patient complained of a persistent bothersome pain, neuralgic in nature, in the left lower anterior area of the rib cage, near the xiphoid process. This persisted about two weeks.

Four weeks after onset the patient was put in hospital. Results of examination of spinal fluid, of heterophil agglutinin, of blood and of urine were within normal limits. An electromyogram at this time showed denervation fibrillations in the arms and the legs as well as in the neck muscles. No abnormality was seen in roentgen examination of the upper gastrointestinal tract.

Romberg's sign was present. When smog forced the patient to keep her eyes closed, she could not stand or walk. When fluoroscopy was being done for the upper gastrointestinal roentgen examination, the patient needed support to keep from falling.

Five weeks after the beginning of illness, irritation of the right sciatic nerve developed after the patient had sat in a hard chair in a cramped position. This lasted two days. Strength returned very slowly. Three months after the onset of illness the patient could walk only a dozen steps. Pain persisted in the back and legs. Sensation slowly became normal. Edema of the legs, as seen in other paralytic conditions of the lower extremity, became troublesome. Four months after onset the patient moved to another city where she was admitted to a county hospital (because of a condition not related to the illness here reported) and there she received rigorous physiotherapy, first as an in-patient and then as an out-patient. At the time of latest verbal communication with the patient, ten months after the onset of the symptoms here described, she told of remaining weakness.

Case 5. The patient, an 11-year-old daughter of an anesthetist, in May of 1956, while receiving posture correction exercises was noted to have specific muscular weaknesses. Questioning disclosed an episode of "flu" and frequent episodes of upper respiratory tract infection during the winter, but no real history of dizziness. On examination weakness bilaterally of the deltoids, biceps and triceps as well as the hip flexors and of the external rotators of the right foot was observed. An electromyogram done on the left leg, the only limb tested, showed denervation fibrillations.

Case 6. The patient, a 10-year-old girl, was first seen in early June with slight fever and malaise. Four days previously, dizziness and aching pains and weakness in the legs had developed. Upon examination, weakness of both the hip flexors and the left internal rotators was noted. Hyperesthesia of the anterior aspect of both thighs was followed by hypesthesia. By the end of two weeks strength and sensation had returned to normal.

Case 7. A 24-year-old medical secretary in the rehabilitation department of the hospital was admitted to the hospital June 11, 1956, after a fainting episode. She had had fever, cough, malaise, sore throat with laryngitis and dizziness for the three preceding days. Pronounced bilateral weakness of the deltoid muscles, biceps and triceps, and of the hip and knee flexors and extensors was observed. There was hyperesthesia of the lower extremities and in the arms. Romberg's sign was present. Headache and dizziness lasted a week. A substernal pain [similar to the pain in Case 4] developed. Ingestion of antacids did not relieve it. It abated after a few days. During convalescence, signs of sciatic nerve irritation developed and lasted two days. Recovery was slow, requiring rest in bed and absence from work. When last observed, eight weeks after the onset of illness, the patient had slight shoulder weakness and decided hip weakness, although less than previously.

Case 8. In July a 65-year-old woman had fever, nausea, a lightheaded dizzy feeling, headache and pains in the legs and hips. When the patient was first examined two weeks later, there was weakness of the hip, knee and ankle flexors and extensors bilaterally. The muscles gradually returned to normal over a period of six weeks.

Case 9. In late June a 12-year-old girl complained of malaise, generalized weakness, dizziness and intermittent epigastric pain with anorexia of a week's duration and fever for one day. She had one plus bilateral hip flexor weakness with hyperesthesia of the left calf. The changes lasted three weeks.

Case 10. A 21-year-old woman was examined three days after onset of sore throat, chilliness, fever, headache and dizziness. The tonsils were enlarged and covered with purulent exudate, and the uvula and palate were edematous and red. There was two plus weakness of the right deltoid muscle and one plus weakness of the right biceps and of the hip flexors bilaterally. Slight hyperesthesia of the lateral side of the right calf was noted. Within a week motor and sensory abnormalities had cleared. A heterophil agglutination test done ten days after onset gave positive reaction in dilution of 1:224.

Case 11. A 24-year-old woman was seen in June with fever, dizziness and slight weakness of the right deltoid. This cleared in two weeks.

New cases were not seen after early July although every patient with a clinical picture suggesting an acute infectious process was carefully screened with motor and sensory examinations.

It was not until May 29, 1957, that the next case was seen. In the ensuing month two more cases were found.

THREE CASES IN 1957

Case 12. A 31-year-old housewife was well until sudden onset of headache, sore throat, fever, weakness, a shaking chill and dizziness. Seven hours after symptoms began she was examined by a physician. She then had general aching of muscles so severe as to require 100 mg. of Demerol (meperidine hydrochloride) for relief. A feeling of numbness followed, greatest in the arms and legs. The patient was put in hospital and when she was examined there she appeared acutely ill. The temperature was 102° F. The throat was reddened. Generalized hyperesthesia and apparent weakness in the limbs were noted. Reflexes were active. By the next day, hyperesthesia had disappeared. There was three plus weakness of the flexors, extensors and rotators of the left hip and two plus weakness of the right hip. Reflexes were depressed. The result of a heterophil agglutination test was negative. A stool culture, done because of some diarrhea, showed salmonella muenchen and agglutination studies for salmonella showed a 1:40 titer in the Kauffmann-White C1-C2 group. However, the patient's daughter was found to have the same organism in her stool. The patient was regarded as a carrier and the organism was not felt to be causative. The spinal fluid pressure and the content of the fluid were within normal limits. An electromyogram showed changes compatible with peripheral neuritis, even in muscle groups which seemed clinically uninvolved. Headache lasted three days. As in two cases previously described, lower sternal pain developed; it lasted two days. Over the next six weeks the strength of muscles gradually returned to normal, and an electromyogram showed commensurate improvement.

Case 13. In May, a 25-year-old woman had chilliness, fever and severe headache for several days and dizziness which persisted for a week. In the three weeks ensuing she had aching in the legs, weakness and continuing fever. When the patient was first examined by the author three and one half weeks after onset, there was two plus weakness of the left hip flexor and slightly less weakness of the internal rotators. On the right the weakness was somewhat less. An electromyogram was compatible with peripheral neuritis. Six weeks after onset of illness, strength was almost normal.

Case 14. On June 25 a 39-year-old woman had sudden onset of sore throat, headache, fever, dizziness and muscular aches. Weakness of the hip flexors, extensors and rotators, and of the knee extensors and flexors, greater on the right than left, was noted, and there was also hyperesthesia of the left thigh and calf. Improvement was noted in the 17 days the patient was observed up to the time of this report.

DISCUSSION OF CASES

The age range of patients was 10 to 65 years. Only one of the 14 patients was a man. Thirteen had a definite history suggestive of acute infection. Twelve had dizziness and aching muscles. All had motor changes, five of them in both the arms and legs, two in the arms alone, seven in the legs alone; symmetry of motor involvement was present in the arms in three cases and the legs in 12. In nine cases definite sensory changes were noted. Three patients had a lower sternal pain which was felt to be neuralgic. In three cases signs of sciatic nerve irritation developed; this reflected the hypersensitivity and increased irritability of the nerve. Electromyograms were made in seven cases and all were confirmatory of neuritis. Heterophil agglutination tests were done in seven cases; in only one was the reaction positive. Lumbar puncture was done in four cases; no abnormality was noted in any of them.

As was noted, 13 of the 14 patients were female. The case of the man was the only one in which there was not a history strongly suggestive of infection, and possibly the disease in that instance was traumatic radiculitis, rather than infectious neuritis. During the period covered many male patients with various acute infections were seen, some definitely fitting the pattern of headache, fever, and dizziness; yet none of them had muscle weakness.

Reflexes were normal or depressed.

Proximal muscle groups were consistently affected more frequently and more severely than distal groups.

The two most severely affected patients (Cases 4 and 7, 1956) had Romberg's sign. It is believed this did not indicate posterior column disease but, rather, involvement of proprioceptive nerves.

DIAGNOSIS

Important factors in clinically establishing the diagnosis and in differentiating it from poliomyelitis are:

1. Motor weakness which involves nerves derived from adjacent neurotomes rather than involvement of several neurotomes in a spotty fashion.
2. Definite sensory changes, which are neither spotty nor very transient, such as may be observed (but usually are not) in poliomyelitis.
3. Symmetry of pattern.
4. Antecedent or concomitant infectious state.
5. Other symptoms—such as headache, dizziness and muscle aches—which fit the syndrome.
6. Kernig's and Brudzinski's signs not present, and no nuchal rigidity.

Results of laboratory studies further clarify the diagnosis—no abnormality of the spinal fluid examination, and an electromyogram showing polyphasic motor units and denervation fibrillations.

Since the patient seldom complains of specific weakness, the diagnosis may be overlooked unless the physician has an awareness of the condition and carries out routine testing of muscle strength and of sensation in each patient with history of infectious disease. If weakness is found, other studies can be carried out.

ETIOLOGY

No attempt has been made to determine the causative organism. The fact that in three of the cases observed in 1956 (Cases 1, 2 and 7) the patients worked in the same department suggests it is of contagious nature.

A relationship to infectious mononucleosis is suggested because of the similarity in the clinical course in Case 10 (1956), in which there was positive reaction to heterophil agglutination test, with the other cases. Guillain-Barre's syndrome is unlikely for the results of spinal fluid examination were within normal limits. The Coxsackie virus certainly has to be considered among the possibilities, especially since the polyneuritis occurred during poliomyelitis season, when the Coxsackie virus is also prevalent.

In a review of recent literature no report was found of similar cases in this country. However, Macrae and Galpine[1] reported 13 cases (amongst 49 nurses) of an "illness resembling poliomyelitis" in a Coventry hospital. The clinical features, beginning with an acute infection leading to weakness and sensory changes, were similar to those in the series herein reported. Results of laboratory, spinal fluid and electromyographic studies were also similar. Studies done by Macrae and Galpine on the stool, as well as additional studies for leptospiral infection, lymphocytic choriomeningitis. poliomyelitis and other virus infections, failed to detect the etiologic agent. In the Coventry series all the patients were females. It can be postulated that the two illnesses bear a close kinship.

TREATMENT

Therapy is nonspecific, being that used in most neuritides—multivitamins orally and parenterally, thiamine chloride 100 mg. three times daily, and vitamin B_{12}, 1000 mcg. daily at first and then two or three times weekly. Rest in bed was maintained while the weakness was progressive. Gradual ambulation and physiotherapy were employed as strength increased.

PROGNOSIS

The rate of recovery seems to be in proportion to the degree of severity. Mild cases cleared in two weeks, moderately involved cases in a few months. In the two most severe cases, unfortunately, the patients moved away and close contact was lost. But progress in these two was much slower than in the less severe cases, in which improvement began usually in less than a week and proceeded steadily. In the severe cases (Cases 4 and 6, 1956) it was several weeks before signs of improvement were noted, and then return to normal progressed very slowly. In these two there was prolonged disability requiring rest in bed for many weeks.

The sensory changes clear up faster than the motor.

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ADDENDUM

After this paper was submitted, three more cases were observed. All the patients were women between 20 and 30 years of age. The clinical course was similar to that noted in moderately involved cases.

REFERENCE

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CASE REPORTS

Partial Duodenal Obstruction Secondary To Annular Pancreas

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ANNULAR PANCREAS is an infrequent developmental anomaly that usually causes clinical symptoms by bringing about duodenal obstruction of varying degree. The anomaly was described by Tiedman in 1818 and first named by Ecker in 1862.[4] More than 90 cases of annular pancreas, 60 treated surgically, have been reported.[12]

The development of the pancreas is often accompanied by ectopic pancreatic tissue in the stomach and duodenum. The organ develops from two anlagen, dorsal and ventral. The dorsal anlage, arising from that portion of the gut just proximal to the common bile duct, forms a portion of the head, body and tail of the pancreas. The ventral anlage is divided into two buds, right and left; the latter atrophies while the right persists. As intestinal rotation and development progresses the ventral anlage fuses with the dorsal, forming the head of the pancreas and enveloping the second part of the duodenum. The duct of Wirsung is composed of the union of the duct systems of both anlagen in the head of the pancreas. According to Bovill and co-workers,[2] in annular pancreas the left ventral anlage persists and remains fixed to the anterior portion of the duodenum and thus encircles as the migration of the pancreas takes place. Lecco[7] thought the cause to be adherence of the right ventral anlage to the wall of the duodenum and that an annulus was formed by dorsal rotation. The embryological aspects of the anomaly have been thoroughly discussed by other investigators also.[3,10] One of the practical aspects of the embryological development is that the pancreatic annulus often contains a duct and is sometimes so adherent to the wall of the duodenum that separation is not feasible. Perhaps this explains the abandonment of direct resection of the pancreatic ring as a method of treatment.

The symptoms in general depend on the degree of duodenal obstruction. As Ravitch and Woods[10] stressed, this anomaly usually does not cause symptoms until late in life. Obviously if obstruction is complete or if the ampulla of Vater is involved, symptoms are present in the first days of life.[5]

Diagnosis also depends in most part on severity of obstruction. A roentgenographic characteristic is the "double bubble" caused by dilatation of the duodenum and stomach proximal to the lesion. A history of recurrent attacks of nausea and vomiting and of intolerance for solid food since childhood should arouse suspicion of annular pancreas.

REPORT OF A CASE

A nine-year-old white girl was examined because of vomiting, nausea, poor appetite and rather peculiar selective habits as to diet. Foods such as corn, peas, dry beans, plums and peaches were avoided because they would cause her to vomit within a half hour to two hours after ingestion. She was the fourth child in a family of six. Over the years the patient's mother had come to think of her as an emotional and sensitive child, especially because of frequent vomiting, which sometimes occurred when the child became upset by what seemed insignificant things. The first episode of severe vomiting occurred when the patient was one year of age. She was admitted to a hospital with pronounced dehydration and debility due to vomiting for several days. She responded to administration of fluids by vein and was discharged improved. Vomiting thereafter was not severe or of long duration until the present attack, which had been preceded by frequent infections of the upper respiratory tract, including tonsillitis. Vomiting following every meal had begun after she had had a cold for five days.

The patient was fairly well developed and well nourished but rather small compared with the rate of growth and development of siblings. Her height was 50 inches and weight 55 pounds. The temperature was 98.6°F., the pulse rate 78. No pathological conditions were noted on examination of the scalp, skull, eyes and ears. Pronounced congestion of the nasal mucosa and hyperemia of the pharynx were observed. The tonsils were large. A few cervical nodes were palpable. The thyroid gland could not be felt. No abnormalities of the lungs or heart were noted. Moderate tenderness was elicited by deep palpation over the epigastrium, slightly more on the right side. No masses or enlargements of organs were noted. Reflexes were within normal limits.

Antispasmodics, sedatives and antibiotics were given and the upper respiratory tract infection was greatly improved but vomiting continued after the

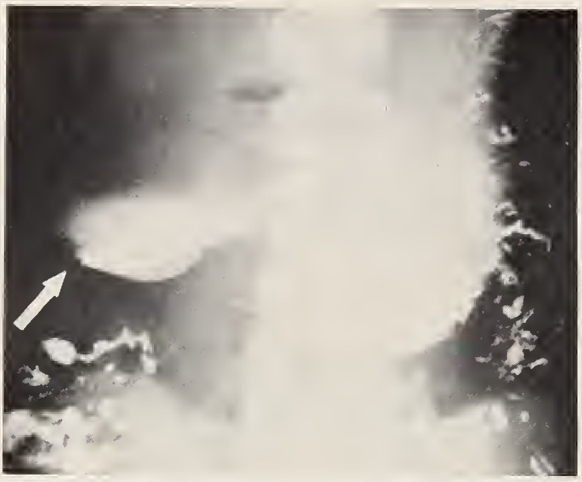

Figure 1.—Partially filled stomach. The coin (arrow) which later turned out to be two pennies apparently glued together by mucus, is shown lying in the viscus (a dilated segment of duodenum).

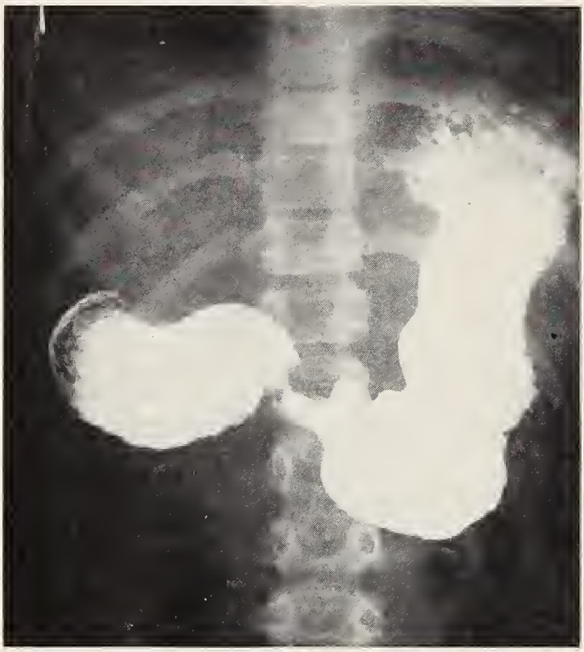

Figure 2.—Hypertrophied duodenal mucosal pattern resembling gastric rugal folds.

second day of treatment and the patient was put in the hospital. She was fed parenterally only and the vomiting subsided 36 hours after admission. After vomiting stopped, complete gastrointestinal x-ray studies were made. On fluoroscopic examination the heart and lungs appeared normal. Barium passed through the esophagus in the usual manner. The stomach filled completely, but the barium spouted through the pylorus and entered a viscus that appeared to be about half the size of the stomach. The viscus lay slightly above the lower level of the stomach and to the right of it. In it was seen what appeared to be a coin. The mucosa of the viscus resembled that of the stomach. Mobility, motility, pliability and mucosal pattern of the stomach looked normal. The duodenal bulb could not be identified. Roentgen films bore out the fluoroscopic observations and showed a dilated segment of duodenum distal to the pylorus. The previously noted coin-like object lay in the dilated segment. Slow passage of the barium indicated obstruction of the duodenum. (In three hours only a small portion of the barium left the viscus, most of it remaining in the dilated segment of the stomach.) A study with barium enema also was done, and save for the presence of a coin lying above the hepatic flexure, no abnormality was observed.

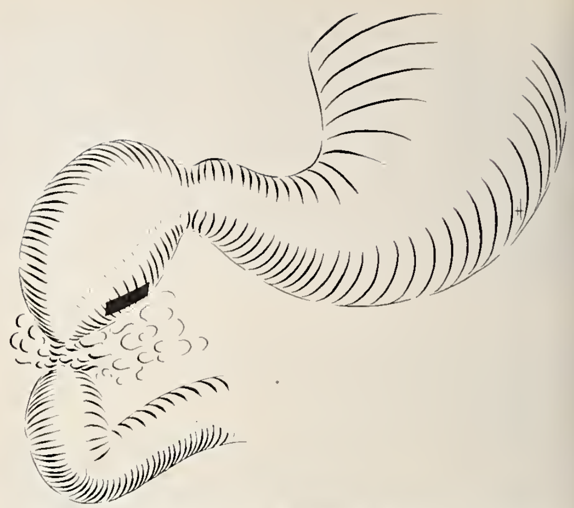

Figure 3.—Drawing to illustrate dilated, thickened, edematous duodenum with a constriction formed by pancreatic tissue distal to the ampulla of Vater.

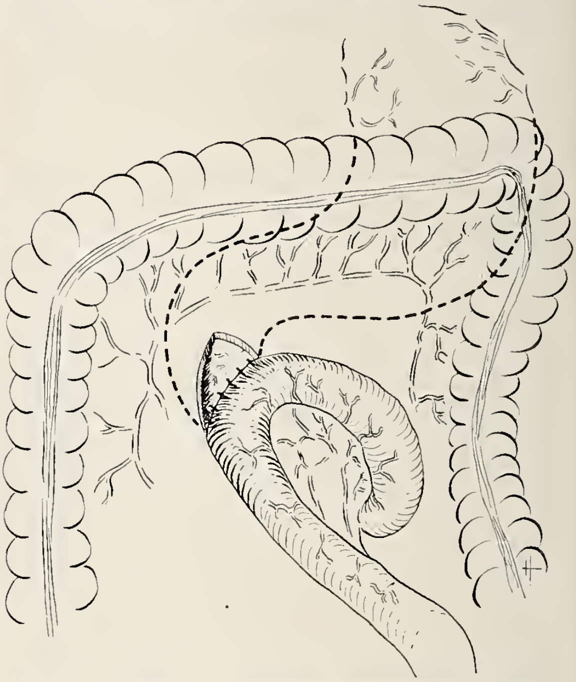

Figure 4.—Retrocolic duodenojejunostomy as done in the present case by anastomosis of the duodenum and the jejunum.

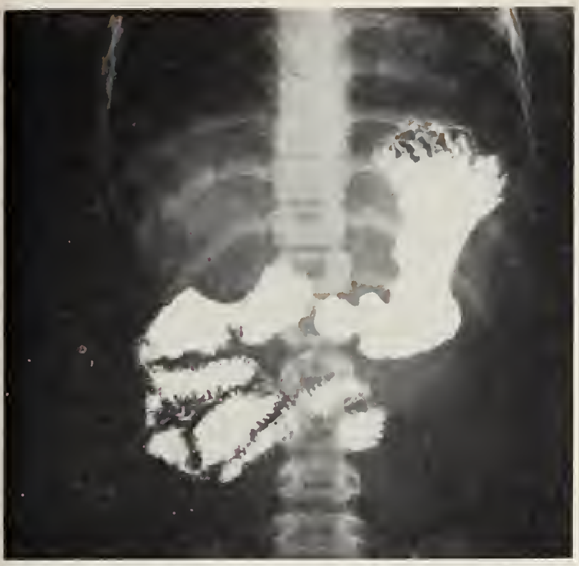

Figure 5.—The stomach appearing somewhat smaller five months after operation, showing the irregularity of the pylorus and duodenal bulb with the still remaining slightly dilated segment of duodenum.

At operation the duodenum was observed to be dilated, thickened and edematous, with a constriction formed by pancreatic tissue distal to the ampulla of Vater. No other intestinal abnormalities were discernible. Two pennies stuck together were in the duodenum proximal to the incomplete obstruction; they did not contribute to the obstruction. Retrocolic duodenojejunostomy, with anastomosis of the proximal duodenum to the jejunum, was carried out. Liquid feedings were begun two days after operation and the patient was discharged on the fifth day.

At home, without her parents' knowing, she ate jelly beans and other candy and drank large amounts of liquids. Vomiting followed. The parents at first were not alarmed, ascribing the vomiting to emotional distress since supposedly the operation had corrected the organic cause. Three days after being discharged the patient was readmitted because of lethargy, dehydration and carpal-pedal spasm. The diagnosis was hypochloremic alkalosis. The carbon dioxide content of the blood was 34 mEq. per liter and serum chlorides 58 mEq. per liter. Total protein content, the albumin-globulin ratio, serum calcium and potassium and a hemogram determination were within normal range. Roentgen examination of the abdomen showed an isolated loop of jejunum which was believed to be proximal to the anastomotic junction. Nasogastric suction was begun and 0.75 per cent ammonium chloride and 5.0 per cent sodium chloride solutions were given parenterally. Within 24 hours the patient became more alert, serum chlorides and carbon dioxide contents were within normal range and an x-ray film of the abdomen no longer showed the isolated dilated loop of jejunum. Oral feedings were begun in 48 hours and were well tolerated. The patient was discharged after seven days and was asymptomatic thereafter. About five months later roentgenographic study of the upper gastrointestinal tract was carried out and the stomach was observed as essentially normal and the second portion of the duodenum as slightly dilated. There was no obstruction to passage of barium. Nine months after operation the patient's height was 52 inches and her weight 71 pounds.

DISCUSSION

Although the child in the present case had a history of having avoided eating corn, beans and pulp fruits because of vomiting immediately after ingestion of them, nonetheless annular pancreas existed for eight years without thorough investigation. The characteristic "double bubble" sign was not shown in a plain x-ray film of the abdomen. Barium studies were necessary for accurate diagnosis. It would seem advisable, in the case of a child with recurrent episodes of vomiting accompanied by developmental retardation, asthenic habitus and emotional instability, that the cause of the emesis be fully ascertained.[2] Perhaps in the present case postoperative vomiting could have been avoided by (1) waiting until the acute episode was fully abated before doing the operation, since obstruction was not complete, and (2) keeping the patient under dietary supervision in the hospital for several weeks.

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Carcinoma of the Stomach in Young Adults

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CARCINOMA OF THE STOMACH is not limited to the later years of life, and general recognition of this fact could lead to some lowering of the rate of mortality from the disease. Two cases of gastric carcinoma in young adults are illustrative, and although

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From Eden Hospital, Castro Valley.

Submitted March 21, 1957.

there were some clinical similarities, the two were entirely different as to type of carcinoma and the secondary lesions. Both patients were in the hospital at the same time and died within a week of each other.

Case 1. A 23-year-old man was admitted to the hospital with complaint of mild generalized abdominal pain which had begun on the afternoon of the preceding day. He was slightly nauseated and had vomited once.

He had been well until ten months previously when there had been an episode of sudden pain in the abdomen so severe that it "doubled him up." There had been no nausea nor vomiting at that time and no tarry stools were passed. He had been put in hospital but was completely free of symptoms within 24 hours, and was discharged from the hospital without a definitive diagnosis. There had been a similar episode three months later; and a month before the present admittance the patient had noted dull pain in the back and flanks for a few days.

Upon physical examination the patient was observed to be well developed and well nourished. There was no evidence of recent loss of weight. The abdomen was soft and a 3 cm. nodular mass was palpable at the lower border of the right lobe of the liver. Results of examination of the blood and urine were within normal limits. A serologic test for syphilis was negative. Analysis of gastric fluid showed total acidity of 56 units, but no free acid, a guaiac reaction positive for hemoglobin, and a negative reaction for bile. Roentgenograms with a barium meal showed a filling defect of the antrum of the stomach, with ulceration of the mucosa of the greater curvature. About 50 per cent of the barium remained in the stomach at the end of six hours. No lesions were observed in urograms, in films of the chest or in studies with barium enema. Because of the lesion of the liver, the gastric lesion was considered inoperable.

During the first two months in the hospital, the weight of the patient decreased 20 pounds. The temperature was sometimes normal but usually it was 100° F. to 102° F. He became jaundiced and the icterus index varied between 19 and 40 units for the remainder of his life. Urobilinogen was present in the urine in a dilution of 1 to 200. The stool contained no bile nor urobilinogen but contained large amounts of occult blood. The erythrocyte content decreased to 3,200,000 per cu. mm. of blood and the hemoglobin content to 7 gm. per 100 cc. The patient was unable to retain much food during the fifth and sixth months in the hospital, and jejunostomy was done. The surgeon noted a hard mass in the pyloric portion of the stomach and an enlarged lymph node in the lesser curvature. The patient became progressively weaker after the operation and had intermittent irregular fever as high as 102° F. Seven and a half months after admittance he died.

Autopsy

The body was emaciated, and there was generalized icterus. The jejunostoma was patent. There was a recent thrombus in a medium-sized artery in the upper lobe of the left lung associated with a red infarct 4.0 cm. in diameter. The tissues of the porta hepatis were composed chiefly of metastatic tumor and enlarged lymph nodes. The tumor constricted the common bile duct, the portal vein, and the hepatic artery in the lower portion of the porta hepatis, and there was partial replacement of the walls of the common bile duct and portal vein by tumor tissue immediately below the level of the junction of the hepatic ducts. In the lining of the portal vein there was an ulcerated area 1.0 cm. long, and the common duct was ulcerated and completely occluded by tumor in an area of similar length. Tumor tissue extended around the cystic duct and infiltrated the wall of the gallbladder.

The liver weighed 2,500 gm. and contained many subcapsular and intrahepatic abscesses which were up to 3.0 cm. in diameter. These contained thick yellow pus. Approximately one-third of the entire liver substance was occupied by abscesses. The walls of some were thick and fibrous while others had no walls except for necrotic liver tissue.

A few of the lymph nodes in the region of the head of the pancreas were enlarged and had grayish white glassy cut surfaces. The pancreas was normal, as were the remaining abdominal viscera with the exception of the stomach.

The fundus of the stomach was slightly dilated. An annular ulcerated carcinoma with rounded firm edges was observed in the antral region. The area involved by tumor was 5.0 cm. long and its distal edge was at the pylorus. The thickness of the stomach wall in the region of the tumor was 1.0 to 1.5 cm. The tumor was composed of glassy gray tissue in which there were occasional areas of yellow necrotic tissue up to 0.2 cm. in diameter. The lumen was extremely narrow in the region of the tumor.

Upon microscopic examination the tumor of the stomach was observed to be a moderately well-differentiated adenocarcinoma. Masses of tumor cells extended through the wall of the stomach into the subserosa and into the smooth muscle of the pyloric sphincter. Many of the cells contained secretory vacuoles and within the lumens of some of the imperfect glands were masses of debris. The vacuoles and debris stained bright pink with mucicarmine.

The lymph nodes of the lesser curvature, the porta hepatis and around the head of the pancreas were filled with tumor which formed imperfect glands and large quantities of mucin (Figure 1). Similar tumor was present in the areolar tissues of the porta hepatis and tumor invaded through the walls of the portal vein and the common bile duct.

Neoplasm was not observed in the liver although many sections were examined. Fibrous tissue surrounded some of the abscesses, but others had practically no peripheral fibrous tissue. The cavities of the latter were bounded only by a zone of necrotic liver parenchyma.

The cause of death was mucus-producing adenocarcinoma of the pyloric portion of the stomach,

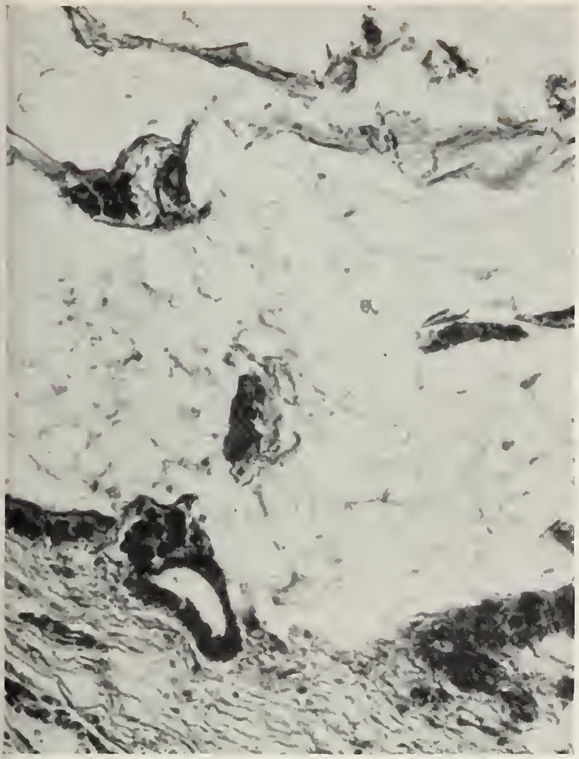

Figure 1 (Case 1).—A portion of a lymph node from the porta hepatis. Abundant mucin, and a small acinus in the capsule of the node. (Hematoxylin-eosin stained, ×185.)

with metastasis to the regional lymph nodes and to the areolar tissues of the porta hepatis, with extension from the latter into the wall of the gallbladder, the common bile duct (causing complete obstruction), and the portal vein (causing partial obstruction). In addition, there were multiple abscesses of the liver, thrombosis of an intrinsic branch of the left pulmonary artery with infarction of lung tissue, and generalized obstructive icterus.

It is believed that the nodular mass which was palpable in the liver at the time the patient was admitted to the hospital was one of the hepatic abscesses observed at autopsy. The hepatic abscesses presumably resulted from dissemination of organisms into the liver, via the portal vein, from the ulcerated infected neoplasm of the stomach.

Case 2. A 31-year-old white man was admitted to the hospital with complaint of pain in the flanks which caused him to maintain a stooped posture. He had been well until six weeks before, when a dull pain developed in the left flank as he lifted a heavy box. This pain became progressively more severe, and for two weeks before admittance he had had pain in the right flank also. The patient had to strain considerably to pass urine but there were no other urinary symptoms.

The patient appeared well nourished. The abdomen was flat and no masses could be felt in it. There was tenderness in both flanks on deep pressure. The prostate was large, firm and tender. No abnormalities were noted on examination of the blood and urine. The diagnosis was prostatitis.

Sitz baths and sulfadiazine were prescribed and after ten days the difficulty in urination was considerably less. Pain in the back persisted in spite of daily administration of Dilaudid® (dihydromorphinone) and scopalamine. Ectasia of the calyces of both kidneys and sharp kinking of the left ureter at its junction with the pelvis of the kidney were observed in retrograde urograms.

Three weeks after admittance a firm mass 2.0 cm. in diameter was noted in the right inguinal region, and an irregular, firm nontender mass was felt in the scrotum. A week later a similar mass was noted in the suprapubic region. Two months after admittance, sigmoid colostomy was performed for chronic rectal obstruction, and an appendix epiploica from the sigmoid colon was found to contain cells of a poorly differentiated carcinoma.

After the operation, the patient had episodic diarrhea and vomiting. Bilateral ankle edema and ascites developed. The patient became gradually weaker, and died four and a half months after admittance.

The clinical diagnosis was carcinoma of the prostate with metastasis to the scrotum, right inguinal lymph nodes and rectum.

Autopsy

The body was emaciated. In the dermis of the lower edge of the larynx was a flat nodule 2.0 cm. in diameter. A double-barrel colostomy opened on the left lower quadrant of the abdomen. There was a poorly defined tumor in the abdominal wall extending up from behind the pubic symphysis, and similar tumor was palpable in the skin of the perianal region and the perineum. The latter was contiguous with tumor which extended into the tissues of the scrotum. Upon digital examination of the rectum woody hardness of the tissue surrounding the anus and rectum was noted. The lumen of the rectum was decidedly narrowed.

Firm retroperitoneal tissue extended along both sides of the abdominal aorta and in the mesenteries of the small intestine and sigmoid colon. This firm tissue extended down into the pelvic fascia and into the connective tissue surrounding the rectum and the neck of the bladder.

The porta hepatis was thickened and indurated. The wall of the gallbladder was diffusely thickened by firm invading tumor tissue.

Section into the tumor revealed it to consist of glassy, moist, gray tissue in which were scattered a few pin-point pale yellow areas.

No abnormalities were observed in the liver, pancreas or spleen. The capsules of the adrenal glands were invaded by tumor but there was no encroachment upon the parenchyma. The capsules of the kidneys were likewise invaded by tumor which extended into the renal sinuses and surrounded the renal vessels.

The retroperitoneal tumor completely surrounded and narrowed the ureters from the ureteropelvic junction to the bladder but these structures were not invaded by neoplasm. The mass noted externally above the pubic symphysis was contiguous with invasive tumor of the wall of the urinary bladder.

Retroperitoneal tumor tissue was contiguous with the capsule of the prostate but did not invade the gland, and the prostate itself appeared normal. Tumor extended to the tissues of the perineum, and thence it extended into the scrotum where it invaded the left epididymis.

The stomach was small, of linitis plastica type, and the wall was diffusely thickened. There was a sharply punched-out ulcer 1.5 cm. in diameter in the mucosa of the greater curvature, 5.0 cm. distal to the cardia. There were four other small shallow ulcers of the greater curvature. The thickening of the stomach wall was due to infiltration of dense white tissue into the submucosa, and in some places there was slight similar infiltration in the connective tissues of the mucosa. Tumor tissue contiguous with that in the wall of the stomach extended into the tissues of the subserosa of the diaphragm, and, through the latter, was contiguous with the tumor in the left flank. Neoplastic tissue also extended around the pylorus to become contiguous with that of the right flank and the porta hepatis. The lower portion of the sigmoid colon was invested by dense tumor which was principally in the submucosa and subserosa. This tumor extended downward to form a collar of tumor tissue about the rectum.

Upon microscopic examination of the stomach the submucosa was observed to be diffusely infiltrated with connective tissue of collagenous type which in some places extended into the muscular wall and subserosa. Tumor cells were present in this connective tissue and they were grouped in small, irregular masses that occasionally formed imperfect rosettes which poorly simulated glands. The tumor cells were composed of slightly eosinophilic cytoplasm in small to moderate quantities which in many of the cells had an opalescent appearance similar to that of the parietal cells of the gastric glands. The nuclei tended to be eccentric within the cells and frequently were in contact with the cell membrane at one place. In this respect they also resembled the parietal cells of the gastric glands. None of the cells contained vacuoles, and stains for mucin showed none present. Moderate numbers of mitotic figures were noted.

A cross section of tissue from the right flank revealed tumor completely surrounding many of the nerve trunks, and the perineural lymphatic vessels were nearly all filled with tumor cells. The tumor in the flank consisted chiefly of dense fibrous tissue in which were occasional masses of neoplastic epithelial cells. Many of the latter appeared to be undergoing degenerative changes (Figure 2). In sections of several periaortic lymph nodes, a few areas in which there were small growths of tumor cells were observed. Although large numbers of tumor cells were present in the sinuses of some of the nodes, there was no apparent growth of most of these cells in the nodes (Figure 3). The tumor surrounding the rectum and sigmoid colon was found to be principally in the subserosa with focal extensions into the connective tissue between the external and internal layers of muscle and into the submucosa; and the wall of the urinary bladder was diffusely infiltrated

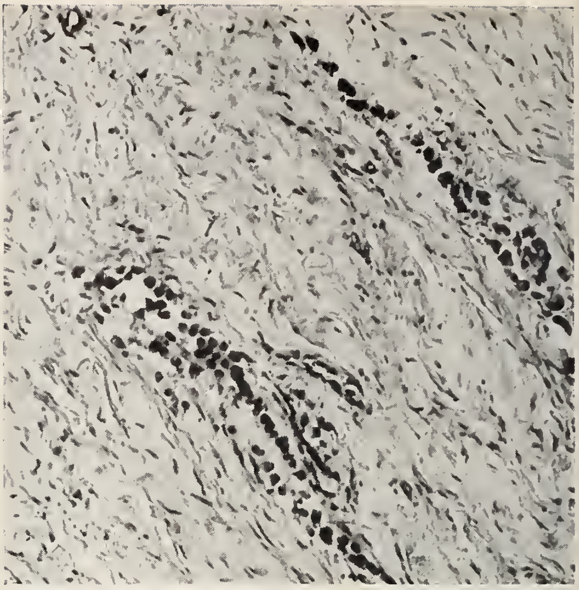

Figure 2 (Case 2).—Retroperitoneal tissue from right flank. Dense collagenous tissue, and lymphatics containing tumor cells. (Hematoxylin-eosin stained, ×114.)

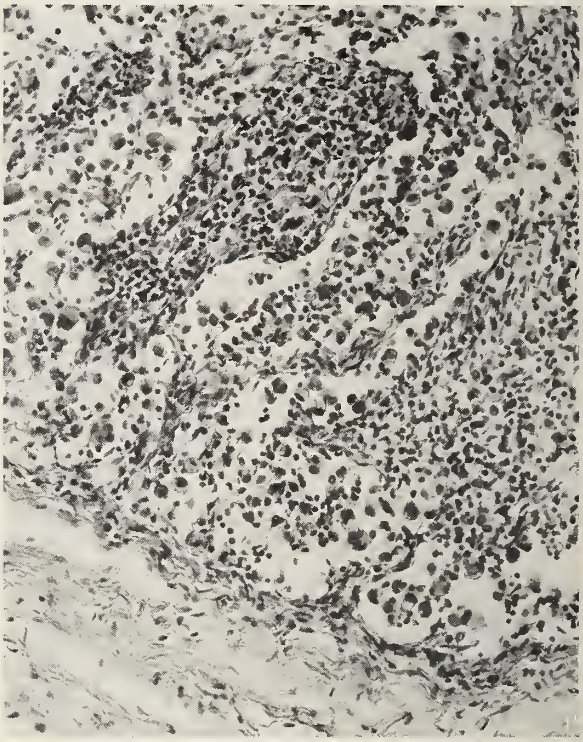

Figure 3 (Case 2).—Section of lymph node showing tumor cells in the sinuses. (Hematoxylin-eosin stained, ×235.)

with masses of fibrous tissue in which there were nests of tumor cells.

The cause of death was scirrhous carcinoma of the stomach, with extension to the retroperitoneal tissues and stenosis of the ureters, extension to the perirectal tissues with stenosis of rectum, and to the perineum, scrotum, wall of urinary bladder, mesentery of the small intestine, porta hepatis, gallbladder, and capsules of the pancreas, adrenal glands, kidneys and prostate. There was also metastasis to periaortic lymph nodes and to the skin of the neck.

DISCUSSION

In a study of a series of 1,913 cases of carcinoma of the stomach, Block, Griep and Pollard[1] noted that only 1.04 per cent of the patients were younger than 30 years. The importance of recognizing that this disease may occur in young adults is illustrated by the two cases of inoperable carcinoma described herein.

Fatal delay in diagnosis and surgical therapy of gastric carcinoma in relatively young persons sometimes results from failure of physicians to accept evidence of neoplasm because of the patients' age. The incidence of benign gastric ulcer in youth is much greater than that of malignant disease, and knowledge of this fact may delay recognition of the latter. However, the danger that any ulcer of the greater curvature of the stomach may be due to carcinoma is so great that all cases of ulceration of this region should be dealt with as though malignant unless other circumstances preclude such treatment or exclude that diagnosis.[6]

The difference in the centrifugal extensions of the tumors in the two cases herein presented is of interest. The medullary tumor had relatively little contiguous spread, but had metastasized by way of the lymphatic channels to the nodes of the lesser curvature of the stomach and to the tissues and nodes of the porta hepatis. The extensions of the scirrhous tumor were almost exclusively by contiguous spread rather than by embolic metastasis, and neoplastic tissue was present throughout the submucosa of the stomach and extended into the retroperitoneal tissues from the regions of the cardia and the pylorus. It passed downward to involve the capsules of the retroperitoneal organs and the fibrous sheath of the rectum and sigmoid, and had entered the perineum and scrotum through the fascial planes of the pelvis. There was invasion of the capsule of the prostate, and doubtless this caused the difficulty in urination which was so prominent as a first symptom.

Wherever the scirrhous tumor extended, some or all of the perineural lymphatic vessels contained tumor cells within their lumens. Many of the lymph nodes receiving these vessels contained tumor cells in their sinuses, but small foci of actively growing tumor were found only in some small nodes of the lesser curvature of the stomach and in a few of the retroperitoneal nodes. The only distant metastatic lesion was in the skin of the neck, where the scirrhous nature of the tumor was again manifested.

Scirrhous tumors and mixed carcinomas which contain scirrhous elements carry an especially bad prognosis,[3] and the earliest symptoms in the present case of scirrhous carcinoma were due to tumor which had spread to the retroperitoneal region. It is believed that such cases provide a clue to the origin of the fibrosing tendency of some gastric carcinomas. The cells are fairly well differentiated and have acidophilic cytoplasm and small nuclei resembling those of the parietal cells of the gastric glands. There is no apparent elaboration of mucus. It is known that the tissue reaction to excessively low pH is likely to be fibrosis. This has been demonstrated experimentally by subcutaneous injection of acid substances into animals.[2] It is reasonable to conclude that some scirrhous carcinomas of the stomach are derived from parietal cells and that the neoplastic cells retain an ability to secrete hydrochloric acid. The acid is believed to be responsible for the excessive production of collagen in these cases. The second case reported here is considered to be a tumor of this type. This origin of some scirrhous tumors of the stomach was postulated in 1905 by Hayem,[4] but it has never been accorded the recognition it seems to deserve.

Jaundice due to metastasis of malignant tumors to the common bile duct is unusual. Herbut and Watson[5] reported three instances of this condition, but noted that there had been no other cases described since 1924.

CONCLUSIONS

Carcinoma of the stomach is not limited to the later decades of life. In approximately 1 per cent of the cases the patient is less than 31 years of age.

Until it is generally accepted by physicians that carcinoma of the stomach does occur in young adults, diagnosis will be delayed in some cases in which the patient might otherwise be benefited or cured by surgical operation.

There is a great probability in any case that ulceration of the greater curvature of the stomach is due to neoplasm.

The premise that some scirrhous tumors of the stomach arise from parietal cells, and that their fibrosing tendency is the result of local diminution of pH resulting from secretion of hydrochloric acid by tumor cells, was supported by conditions observed in one of the cases herein presented.

Metastatic carcinoma involving the common bile duct and portal vein is recorded.

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Severe Recurrent Pancreatitis

A Recent Development in Treatment

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THE THEORY that severe recurrent pancreatitis is caused by pancreatic duct obstruction was encouraged by Priesel in 1922, when he noted partial ductal obstruction due to metaplasia of the epithelium. The work was subsequently corroborated by other investigators, in particular Rich and Duff.[5] It is held that increased pressure in the ductal system leads to rupture of the smaller radicals and extravasation of pancreatic juice into the parenchyma. Unlike experimental obstruction of the duct, clinical obstruction is gradual and incomplete. With the former, it is noted, there is rapid destruction of the acinar tissue and pancreatitis may not occur. The theory of pancreatic blockage as the basic etiologic factor is at least 50 years old but has only recently been emphasized as knowledge of the pathophysiology of pancreatitis has grown.

Upon examination of Warren's classification of the many surgical procedures that have been proposed for the operative management of pancreatitis, it becomes obvious that the vast majority of them are not concerned with treatment of the diseased organ itself: and of the few techniques that are directed at the pancreas *per se*, most make no provision for decompression of the gland—a primary requisite for the correction of the pathologic state.

In 1946, Cattell described the anastomosis of the duct of Wirsung to the upper jejunum in an attempt to relieve chronic pancreatitis. In 1954, Zollinger and DuVal[1] independently reported caudal pancreatectomy and pancreaticojejunostomy for pancreatic decompression. In an attempt to encourage the increased consideration of this operation, the following case is reported.

REPORT OF A CASE

A 33-year-old white housewife was admitted to the private service at the Cedars of Lebanon Hospital with a diagnosis of penetrating peptic ulcer. Roentgen study a year previously, it was said, had showed an active duodenal ulcer.

Despite a rigid regime for treatment of ulcer, including anticholinergic drugs, the symptoms had progressed, and at the time of admittance to hospital considerable epigastric discomfort followed every meal. The severity of pain had increased greatly just before admittance. The patient said that for many years she had drunk a martini nightly before meals and occasionally became drunk over the weekend. She described her pain as epigastric in origin, radiating to the left upper quadrant and boring severely into the back.

Upon physical examination the patient was observed to be well developed but thin, with evidence of moderate loss of weight. The only significant abnormal finding was decided epigastric tenderness and guarding. There was no rigidity. Results of urinalysis, the urea nitrogen content of the blood and a fasting blood sugar determination were within normal limits. The serum amylase was 47 units and serum lipase was 210 units (normal range 60 to 150 units for both enzymes). The stool did not contain fat, but a few meat fibers were present.

In roentgenograms of the gastrointestinal tract no evidence of peptic ulcer was seen. Diffuse calcinosis

TABLE 1.—*Results of Preoperative Secretin and Urocholine Stimulation Studies*

	Blood		Duodenal Drainage			
	Amylase (Units per 100 cc.)	Lipase*	Volume cc.	Amylase	Lipase	Bicarbonate mEq. per 100 cc.
Fasting 1½ hour	38	110	30	562	1400	0.4
After secretin intravenously:						
10 minutes	27	90	12	243	1500	0
20 minutes	<25	120	10	378	1400	0
40 minutes	25	140	12	404	1180	0
60 minutes	<25	150	13	270	850	0
Fasting 1½ hour	<25	130	8	404	750	0
After urocholine subcutaneously:						
10 minutes	<25	130	5	599	600	0
20 minutes	<25	120	0	....	....	....
40 minutes	<25	120	10	599	270	0
60 minutes	Test terminated with narcotics because of severity of induced attack of pancreatitis					

*Normal over 200 units per 100 cc.

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Presented before the Section on General Surgery at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

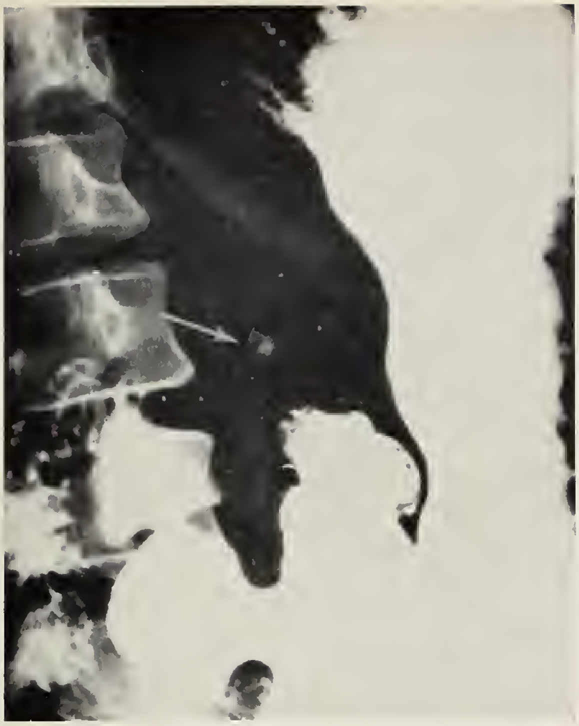

Figure 1.—The arrow points to the two stones obstructing the duct of Wirsung. Calcinosis can be seen distal to this point, but the head of the pancreas does not appear to be involved. (Reproduced by permission of Gastroenterology.)

of the pancreas, particularly the body and tail, was noted, however. Gallbladder function was normal without evidence of cholelithiasis.

It was reasoned from the foregoing that the patient had pancreatitis, and studies were done to establish the diagnosis. A glucose tolerance test was entirely within normal limits. The response of the pancreas to urecholine and secretin stimulation is shown in Table 1. It is evident that pancreatic function was considerably impaired even after intense hormonal and cholinergic stimulation. Both secretin and urecholine induced a severe attack of clinical pancreatitis. Operation was pondered to prevent the progressive complete destruction of an already decidedly diseased gland. Since it is estimated that diabetes will develop in 25 per cent of patients with pancreatic calcinosis and in light of the patient's urgent request for relief of pain and the threat of a life of dependence upon narcotics, operation was decided upon.

Under spinal anesthesia, a supraumbilical transverse incision was made and both rectus muscles were divided. No significant abnormalities except pancreatic disease were observed in the abdominal cavity. The stomach and duodenum were visibly and palpably normal, as was the entire biliary tree. The pancreas was nodular; many calcifications could be palpated throughout the gland. Caudal pancreatectomy, splenectomy and pancreaticojejunostomy were carried out in the following manner. The gastrocolic ligament was divided and the tail and body of the pancreas was mobilized and transected along with the spleen. The pancreatic duct as it emerged from the transected body of the gland was 6 mm. in diameter. By means of a scoop, two stones in the major duct were removed. The larger one was 7 mm. in its greatest diameter. These two stones, which were visible in the x-ray films, were probably the cause of the severe calcinosis in the distal portion of the gland. Diodrast, 35 per cent, was then injected into the duct. Clear passageway and easy egress into the duodenum through the duct of Santorini as well as the duct of Wirsung were shown (Figures 1, 2 and 3).

Intraductal pressure, after removal of the stones, was 90 mm. of water, and it did not rise with the intravenous administration of secretin. This was

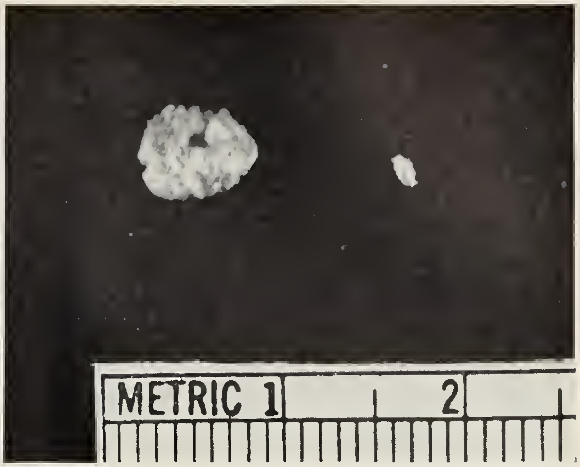

Figure 2.—The two stones shown by x-ray in Figure 1. Note that the larger is almost 7 mm. in diameter. (Reproduced by permission of Gastroenterology.)

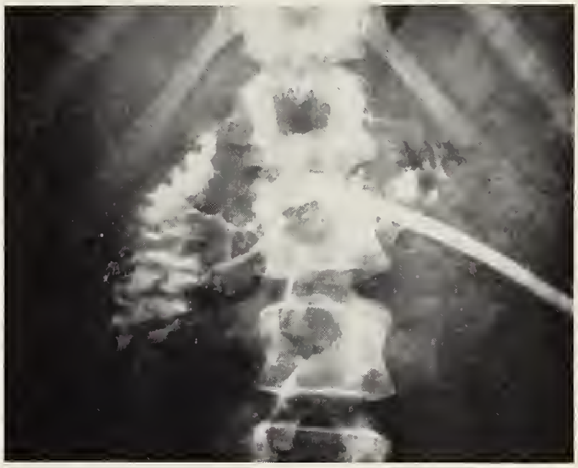

Figure 3.—The injection of Diodrast into the main duct, after removal of the stones and transection of approximately 60 per cent of the pancreas. The ducts of Wirsung and Santorini are clearly outlined and the dye flows easily, without pressure. (Reproduced by permission of Gastroenterology.)

anticipated inasmuch as the obstruction proximally had been removed. An end-to-end anastomosis was done between the remaining body of the pancreas and a defunctionalized loop of jejunum just distal to the ligament of Treitz. A Roux-en-Y technique was used, bringing a limb of the jejunum through the transverse mesocolon (Figure 4). The anastomotic seam was made of interrupted sutures uniting the mucosa of the main duct to that of the jejunum. The outer layer approximated the seromuscular coat of the bowel to the pancreatic capsule.

The patient did well through the procedure. Nasogastric suction was applied for 48 hours after operation. Except for mild diarrhea, the postoperative course was benign and the patient was discharged from the hospital on the eighth postoperative day. At the time of most recent observation, 18 months later, she was taking no medicine, was able to eat an unrestricted diet and to ingest alcohol, and she had no discomfort whatsoever after meals. She said she never had felt so well. That the result of operation was good was apparent within two weeks following the procedure. Subcutaneous administration of urecholine six days after operation did not induce even slight abdominal discomfort, despite a decided pharmacological effect of the drug (severe diaphoresis and urinary urgency); nor was there any increase of pancreatic ferments in the blood following this stimulation.

The following observations were made upon pathologic study of the resected specimen: Atrophic pancreatitis secondary to duct lithiasis, a calculus 0.7 cm. in diameter located in the main pancreatic duct and corresponding dilatation of the minor radicles of the ductal system containing calculi up to 0.2 cm. in diameter (Figure 5).

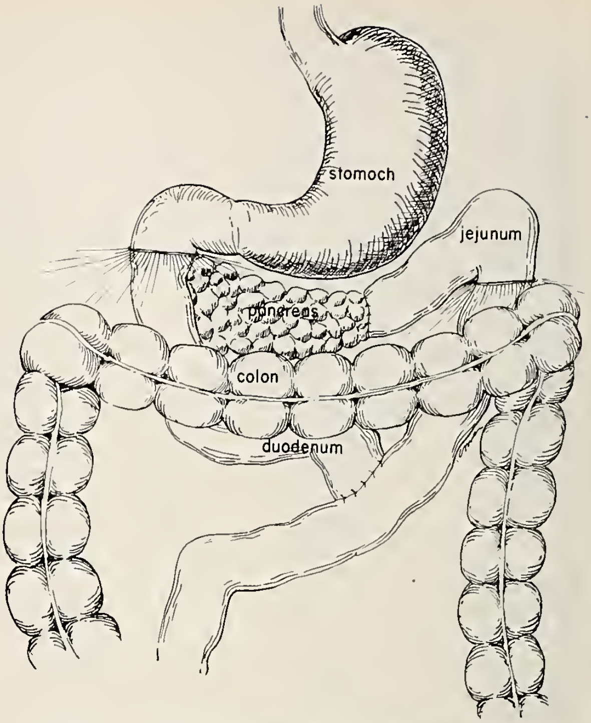

Figure 4.—Artist's concept of the operation described. Actually, more pancreas was removed than is herein depicted. (Reproduced by permission of Gastroenterology.)

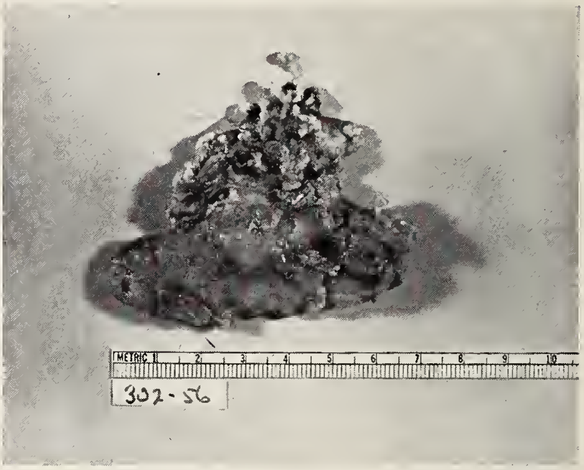

Figure 5.—The resected specimen of pancreas. Note the great dilatation of the main pancreatic duct.

DISCUSSION

Ivy[3] emphasized that spasm of the ampulla or a stone can mechanically obstruct the outflow of pancreatic juice and reflux of bile may not occur. Seldom can the accessory pancreatic duct help toward decompression, for in only about 15 per cent of persons is its communication with the duct of Wirsung wide enough.

Retrograde pancreatic drainage was first carried out by Coffey in 1909, in dogs. He reasoned that regardless of whether the cause was reflux or ductal obstruction, pancreatico-enterostomy should protect the gland. Sensenig[6] recently indicated quite clearly that caudal decompression of the gland did indeed protect the animal from the devastating effect of bile injection into the pancreatic duct.

As one reviews the tremendous mass of writings on this subject, he becomes more and more impressed that ductal obstruction may be the one common denominator in etiology. Increasing acceptance of this concept of elevated duct pressure may be found in modern literature: "Obstruction plays a very important role and may be a *sine qua non* in the genesis of most cases of pancreatitis" (Ivy)[2]; "It has been our central thesis that intrapancreatic obstruction, partial or complete, involving one or both of the major pancreatic ducts is the key to a rational approach to the surgical treatment of chronic pancreatitis" (Warren)[7]; "The anatomical evidence suggesting pancreatic duct obstruction as the etiological agent in the production of chronic pancreatitis would seem to be confirmed by clinical experience" (DuVal);[1] "No single etiologic factor . . . but in the majority of the cases, it is probably a partial or complete obstruction of the pancreatic ducts" (McDermott)[4].

DuVal[1] recently presented strong arguments in support of the obstructive theory. He noted the occurrence of pancreatitis precipitated by stimulation of secretion (by food, especially fats; by alcohol or other drugs; by emotional turbulence). He observed also that the pain of pancreatitis is frequently obstructive in nature and the progressive destruction of the gland with cystic change is certainly in keeping with repeated episodes of back-pressure. Most important, he repeated past investigations and confirmed that the administration of secretin and urecholine to a patient with pancreatitis ordinarily results in a subnormal duodenal output of the enzymes and bicarbonate despite normal biliary flow. This occurs in conjunction with elevation of serum amylase and lipase and frequently incites a clinical attack of pancreatitis.

DuVal suggested that certain criteria as evidence of pancreatic obstruction be met before a patient be subjected to operation, namely: "(1) elevation of serum amylase and lipase during an acute attack; (2) an abnormal quantity of undigested fecal fat on a measured fat intake (Schmidt diet); and (3) a diminished duodenal output of amylase, lipase and bicarbonate, after stimulation of the pancreas by secretin and urecholine." In addition to these criteria, at operation further proof of obstruction of pancreatic outflow is sought: "(4) on section of the pancreas at the junction of the body with the tail, the pancreatic duct should be dilated (normal is up to 2 mm.); (5) injections of radiopaque material into the pancreatic duct system, followed by roentgenographic examination, should not reveal egress of a dye into the duodenum; (6) stimulation of the pancreas by secretin should result in a rise in intraductal pressure well above the resting normal." Following decompressive operation, DuVal observed (with urecholine and secretin stimulation) decidedly decreased serum amylase and lipase levels as compared with the preoperative values, and distinctly elevated concentrations of pancreatic enzymes in the stool. This increased pancreatic output after operation can leave little doubt that obstruction was originally present.

In an attempt to assess the preoperative status of the pancreas in the patient reported upon herein, the following was performed. A Miller-Abbott tube was passed until bile was obtained. The tube was then taped in place and the presence of the metal tip at the duodenojejunal junction was confirmed roentgenographically. Nothing by mouth was permitted after dinner that night and a Levin tube was inserted through the other nostril in the morning. Suction was attached to both tubes through two separate machines. All blood specimens were tested for amylase and lipase. The specimens of duodenal secretin were evaluated for pH, bicarbonate, lipase, amylase and volume. Duodenal secretion was collected for an hour and a half before 55 units of secretin (Lilly) was injected intravenously (approximately 1 unit per kilogram of body weight). Blood specimens and duodenal juices were then collected at 10, 20, 40 and 60-minute intervals. Following a rest period, the test was repeated; this time 10 mg. of urecholine subcutaneously was substituted for the secretin. The results of these tests are tabulated in Table 1. While the concentration of enzymes in pancreatic juice ordinarily seems to be under the influence of vagal stimulation (urecholine), stimulation by secretin ordinarily results in a large volume of thin secretion containing much bicarbonate.

Analysis of Results

1. *Rate of secretion.* Despite the secretin stimulation, the total output from the pancreas in 1 hour was only 47 cc., or considerably less than 1 cc. per minute. With a normal pancreas the volume should range from 75 to 300 cc. per hour following such stimulation. Lopusniak[3] said, "It is tempting to suggest that the total volume of secretion may be a measure of the mass of functioning pancreatic cells."

2. *Bicarbonate concentration.* In normal patients following the injection of secretin the bicarbonate value rises rapidly. In this patient neither secretin nor urecholine stimulation caused the appearance of any appreciable amount of bicarbonate. (Once again, it has been suggested that when the volume and bicarbonate concentration are both depressed this may be some measure of functioning pancreatic acini.)

3. *Duodenal amylase and lipase concentration.* It will be noted that the duodenal enzymes in this patient were not increased under stimulation by secretin or urecholine. This might be expected if the theory of ductal obstruction is valid. Indeed, under urecholine stimulation (possibly increasing the obstructive element through spasm) the duodenal juice concentration of enzymes was decreased.

4. *Blood amylase and lipase.* The depressed amylase and lipase values did not rise even after vagal or hormonal stimulation. Generally, if the stimulation of the pancreas by secretin or urecholine is sufficiently great a clinical attack of pancreatitis will occur with obstruction (as in our patient) with an attendant serum elevation of amylase and lipase. The lack of enzyme response in this patient was an indication preoperatively of the extensive destruction of the gland. The reaction to urecholine stimulation preoperatively was indeed startling. The induced attack of pancreatitis was of such severity that the study had to be concluded prematurely. The patient was screaming and writhing with epigastric and back pain. The spasm was of sufficient intensity to completely choke off all pancreatic secretion 40 minutes after injection of the drug.

The success of decompression in this patient was indicated by the remarkable alteration in response to urecholine and secretin stimulation postoperatively, and the extreme subjective improvement. The chemical studies were not repeated postoperatively because in addition to the expense and the discomfort of reintubation, it was felt that altered values would be of little significance. For it could be argued that removal of the ductal stones was adequate in itself to completely relieve the obstruction to the gland. Indeed, this occurred to us at the time of operation before caudal pancreaticojejunostomy was begun. However, it was reasoned that the calcinosis was secondary to obstruction initially and that removal of the stones alone might well be followed in the future by further episodes of obstruction. Accordingly caudal decompression was performed. (We are experimenting with methods to prove postoperatively the patency of the pancreatic enterostomy by roentgenographic means, thus far unsuccessfully.)

Since the majority of patients with chronic pancreatitis show pronounced evidence of obstruction, it seems reasonable that this relatively simple approach to the treatment of this benign crippling disease should be further pursued. Only after a period of years can the value of the procedure be assessed. While undoubtedly there will be occasional failures, it would appear from early reports that with careful selection, and rejection of cases not meeting rigid criteria for obstruction, the number of poor results should be minimal. In any event it seems that this operation may well become the procedure of choice in the treatment of severe chronic pancreatitis.

SUMMARY

Pancreatico-enterostomy in obstructive pancreatitis is a relatively simple procedure in experienced hands. Preliminary reports are very encouraging regarding this operation in the treatment of this benign but crippling disease.

A report of a case in which a patient was greatly benefited is presented in detail in hope of encouraging further consideration of this operation for severe recurrent pancreatitis.

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Thromboendarterectomy in Occlusive Arterial Disease

Pathologic Examination a Year and a Half After Operation

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THE DEFINITIVE surgical treatment of occlusive disease being in its relative infancy, reports of late follow-up and pathological studies to determine patency of vessels, adequacy of blood flow and clinical evaluation, are of considerable interest.

With this in mind, the following report of continuing clinical observation and then postmortem studies a year and a half after aortic-iliac thromboendarterectomy is submitted.

REPORT OF A CASE

A man 40 years of age was first seen on October 11, 1954, with complaint of increasing intermittent claudication of the muscles of the left calf for two years. The symptoms had become so severe that he could walk only one or two blocks. (The patient had been referred for vascular study by a physician who had removed the nail of the left great toe because of bluish discoloration and apparent infection under it. Cyanosis of the toe persisted, low-grade infection did not abate and gangrene seemed incipient.)

When questioned about the history of increasing claudication for two years, the patient said he had noticed no particular intolerance of cold but that both feet were usually cool and perspired excessively. He had not had claudication in the right leg. He said he had had no pain or cramps in the legs while at rest. There was no history of frost bite or of migratory phlebitis. Except for slight cramping in the left hand when he was working with his fingers, the patient had noticed no other pains or paresthesias in the extremities. There had never been apparent change of color in any of the extremities except for that which had been recently noticed in the left foot. The only symptom of cardiac nature was "tightness in the chest" soon after smoking.

The patient smoked one and a half packages of cigarettes a day and drank moderately.

A gastric resection for ulcer had been done some two years previously, and inguinal herniorrhaphy (with recurrence) 14 years previously. Tonsillectomy and adenoidectomy also had been done some 14 years ago.

Upon physical examination the patient was observed to be flushed, plethoric-looking, perspiring rather freely. Slight tremor and nervous irritability were observed. The blood pressure was 150/100 mm. of mercury. The pulse rate was 96 and the rhythm regular. There was a subcostal scar on the right side, a right inguinal herniorrhaphy scar (with recurrence of the hernia) and a left inguinal hernia.

Submitted December 12, 1956.

The upper extremities were normal except for excessive perspiration. The radial and ulnar pulses were normal. The right leg appeared normal. The foot, normal in color and texture, was slightly cool and perspiring freely. There was no gross abnormal color change on the right side on elevation or dependency of the limb, and the venous filling on dependency was normal in 15 seconds. The peripheral pulses on the right, including the femoral, popliteal, dorsalis pedis and posterior tibial, were palpable.

The nail of the left great toe was absent and the superficial wound of the nail bed was not healed. There was mottled cyanosis and dusky rubor involving the great toe and also the distal end of the foot and the toes. The temperature of the left foot was perceptibly cool. The foot was perspiring profusely. No trophic changes of the skin were noted. There was no loss of hair. Arterial pulses on the left were completely absent below the inguinal ligament. A faint pulse could be felt just above this level. On elevation the left foot blanched, with some pale dusky cyanosis remaining in the great toe. On dependency the venous filling began in about 20 to 25 seconds and was complete in about one minute. Mottled cyanosis and rubor of the toes, most pronounced in the great toe, developed.

In roentgenographic studies of the lower extremities, no evidence of arterial calcification was seen.

A tentative diagnosis was made of occlusion of the left iliac artery owing to arteriosclerosis or, possibly, thromboangiitis obliterans.

Further studies were advised but in the interim the patient was treated conservatively with Priscoline® by the referring physician. After about three weeks in which the condition of the great toe did not improve, throbbing pain persisted and paresthesia developed, the patient returned for further study. At this time the distal foot was a little more cyanotic than before, and the great toe was cyanotic and cool. Both feet were perspiring profusely.

On November 10, 1954, left lumbar sympathectomy was done, including the lumbar ganglia—one through four. The foot became warm and dry, the color improved and the wound in the nail bed healed.

Eight days after sympathectomy, an aortogram showed an occlusion at the terminal aorta becoming apparently complete in the common iliac artery on the left, and with incomplete obstruction extending into the external iliac and hypogastric arteries. There was delayed filling of the femoral artery, but the distal arterial tree appeared to be patent.

On January 12, 1955, aortic-iliac thromboendarterectomy was carried out and a large occlusive thrombus beginning at the terminal aorta and extending well down into the external iliac artery and involving the orifice of the hypogastric artery was removed.

The patient recovered promptly. The left foot remained warm and dry, and the patient was soon walking about the house without claudication. Foot pain and paresthesia, previously present, had disappeared. There was a strong femoral pulse palpable on the left and a palpable posterior tibial pulse.

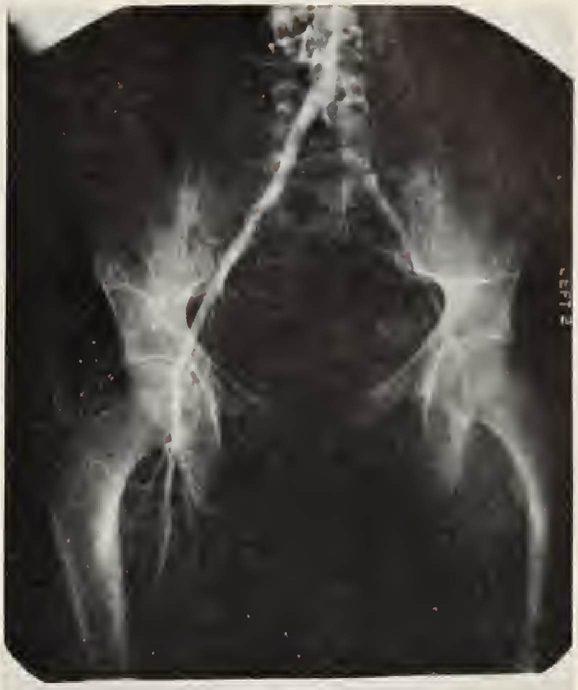

Figure 1.—Aortogram showing complete block at aortic bifurcation extending distally into the external iliac artery and partially into hypogastric artery.

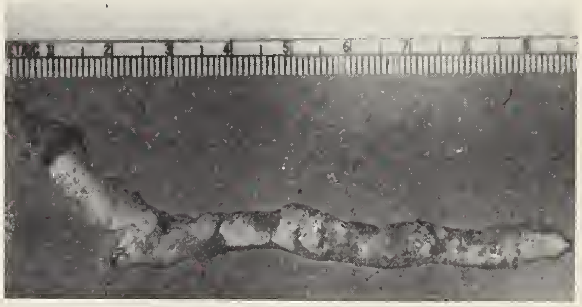

Figure 2.—Calcific thrombus removed from terminal aorta and left iliac, common and external, showing a small tail thrombus attached, which protruded into hypogastric artery.

When the patient was observed a month after operation, the foot was warm and dry and he was walking without claudication. He had complained of partial impotence, before operation, and said there was improvement afterward.

Three months after operation the patient had no symptoms referable to the leg that was operated upon. He was fully employed, working eight hours a day and dancing frequently at night. He said that although he was not impotent, he had lost his ejaculatory power.

Four months after operation the patient apparently had infectious hepatitis. He was treated by a local physician and recovered.

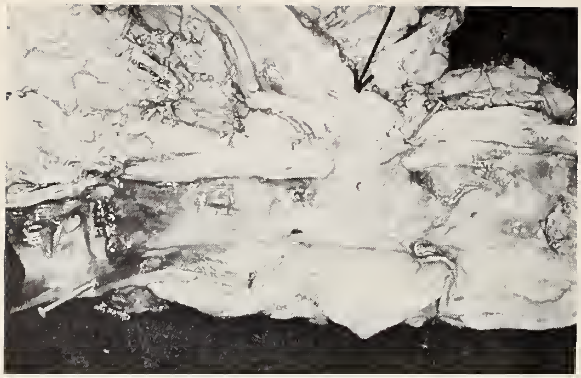

Figure 3.—Close-up of aortic-iliac segment showing wide patency and smooth intimal lining of side operated on, and narrowing and sclerosis of opposite iliac with a stenosed aortic orifice of right common iliac. The pigmentation of the intima on the side on which operation was done is hemosiderin.

Five months after the operation the foot was still warm and dry, there were no symptoms referable to the leg and the patient was fully employed. A completely new, normal nail had grown on the left great toe. The capillary circulation of the skin was excellent.

A month later the patient began to complain of mild symptoms referable to the previously uninvolved right leg; he noted fatigue and tightness in the right calf after walking three or four blocks, and profuse perspiration of the right foot as contrasted with the dry and warm left foot.

A year after the operation the patient spoke of more pronounced symptoms in the right leg on walking, and the foot was cool and perspiring rather profusely. The venous filling had become delayed 25 to 40 seconds and there was very faint rubor on dependency. The right foot at this time was somewhat cooler clinically than the left. The femoral pulse on the right was palpable, but the distal pulsations, previously palpable, were absent. The left leg and foot remained warm and dry and painless. Right lumbar sympathectomy was suggested but the patient demurred.

A year and a half after the aortic-iliac thromboendarterectomy, on July 23, 1956, information was received that the patient had died rather suddenly "while on a party with a friend." A coroner's autopsy was done and death was ascribed to "acute coronary occlusion, with evidence also of an old coronary occlusion with a recanalized thrombus in the coronary vessels."

The following day permission was obtained to secure and study the aortic and iliac vessels. On gross inspection there was obviously a widely patent left common iliac artery which previously had been completely occluded. There was a sharp line of demarcation at the site of the upper end of the endarterectomy in the terminal aorta, and a smooth, glistening, patent arterial wall distal to this point. There were rather pronounced atherosclerotic plaques and changes, proximal to the area of operation, and partial arteriosclerotic occlusion of the right common and external iliac arteries.

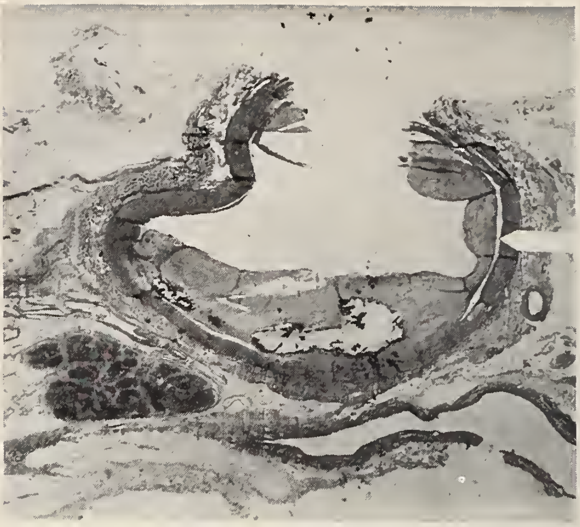

Figure 4.—Cross-section of right iliac artery (not operated upon), showing extensive calcific thrombosis with partial occlusion. Arrow indicates "cleavage plane" along which a thrombus may be "shelled out" in performing endarterectomy.

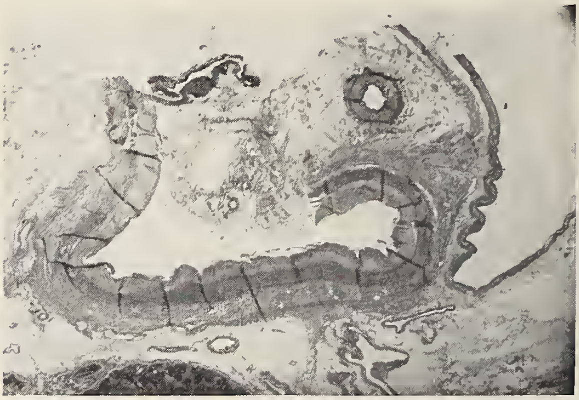

Figure 5.—Cross-section of left common iliac artery a year and a half after endarterectomy. Artery also was split longitudinally. Note widely patent vessel with good wall and endothelial lining. (The dark lines transecting vessel wall are artifacts due to wrinkling of cut sections in preparation of slides.)

Pathologist's Report

The pathologist's report was as follows:

The specimen was the lower 10 cm. of the aorta and a segment of both common iliac arteries in continuity. One common iliac artery was stated to have been the site of an endarterectomy one and one-half years before the death of the patient. The other common iliac artery had not been so treated. On the treated side the intima appeared thin and firmly adherent to the media. There were thin, longitudinal markings apparent on the surface. Pronounced atherosclerosis was observed in the untreated iliac vessel. The intima was thickened. It was friable and was easily separated from the media.

Grossly, the difference between the left and the right iliac artery was striking. The lumen of the left vessel was widely patent with superficial brown discoloration of the intimal lining limited to the site of the endarterectomy and presumably due to hemosiderin. No thrombi were noted within the lumen of this vessel. Decided calcific arteriosclerosis and atherosclerosis were present in the right iliac vessel.

For microscopic examination, specimens were stained with hematoxylin and eosin and with special stains for elastic tissue. In the right iliac artery (the one not operated upon), pronounced calcific atherosclerosis and arteriosclerosis were observed. Elastic tissue boundaries of the vessel were distinct. The left vessel wall likewise had distinct elastic tissue boundaries. The immediate subendothelial portion was the site of superficial fibrosis. There was no obvious atherosclerotic deposition. The lumen of the vessel was widely patent.

SUMMARY

A case is presented of segmental, occlusive aortic-iliac, arteriosclerotic thromboendarteritis with preoperative and postoperative clinical observations and pathologic study a year and a half after aortic-iliac thromboendarterectomy.

The prolonged improvement in circulation (evidenced clinically and corroborated by the observation of widely patent vessels without thrombosis) one and a half years after endarterectomy adds to the evidence in favor of this method of management for segmental arterial occlusion in the larger vessels.

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Metastatic Epidural Abscess with Complete Recovery After Operation

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ALTHOUGH metastatic epidural abscess is an infrequent disorder, early diagnosis is of great importance, for prompt surgical treatment enhances the prospect of recovery without neurologic impairment. More than 200 cases have been reported in the literature, and in the first three decades of this century the mortality rate was above 90 per cent; now it is 20 to 30 per cent but neurological complications remain high. In addition to operation before signs of cord compression develop, prognosis depends upon the infecting organism, the resistance of the patient and the sensitivity of the organism to antibiotics.

Although the condition may mimic many diseases, still the history is very important in arousing suspicion of epidural abscess. Usually there is history of a previous minor or major cutaneous infection (acne, furuncle, carbuncle). However, any reservoir of sepsis can conceivably cause an epidural abscess either by hematogenous spread or by direct extension. Skin infections are by far the most frequent cause of this condition, and the causative organism is usually staphylococcus aureus. Usually, also, there is sudden onset of severe, aching pain at the affected level and later radiation of the pain (root pain). These pains are much more persistent and severe than those associated with other conditions that may be considered in the differential diagnosis (poliomyelitis, meningitis, osteomyelitis, acute arthritis, inflammatory epidural tumors, multiple sclerosis, anterior spinal artery occlusion, transverse myelitis and infectious polyneuritis). History and symptoms of the kind mentioned should lead to suspicion of the disease before it has reached a paralytic phase, but often the diagnosis is not made until motor and sensory disturbances develop.

Commonly at examination the patient appears to be acutely ill, has fever, tachycardia, usually local spinal tenderness, signs of meningeal irritation and root pain. The neurological symptoms will vary depending upon the extent of the pathologic change at the affected site when the patient is first observed. Leukocytosis is common. Spinal fluid pressure will be consistent with partial or complete subarachnoid block. The fluid may be clear to yellow, contain a few leukocytes and have a very high protein content.

REPORT OF A CASE

An 18-year-old white girl had been in good health until a week before admittance to hospital, she had rather sudden onset of low back pain without radiation. The pain was constant but not severe enough to interfere with sleep. The pain persisted for three days and a physician who was consulted prescribed aspirin. In three days, backache had completely subsided, then the following night, seven days after the onset, the low back pain returned with great intensity and radiated to the inner and posterior aspects of the thighs. It was so severe the patient could not lie flat in bed.

On repeated questioning, the patient recalled that two weeks before the present illness, she had had rather severe pain and inflammation for two days in the left forefinger and that about seven days later a little pus had drained from the lesion. She also recalled that a week before the present illness she had squeezed pus from a painful pimple in the right axilla, whereupon the pain was completely relieved. However, about four days before she was put in hospital she noticed a tender lump high in the left axilla. During the entire illness, she did not feel malaise, had no chills, fever or stiff neck, and had excellent appetite.

Upon examination, the patient appeared acutely ill. Sudden flexion of the neck caused pain in the low back. Tenderness to percussion and palpation over the lumbar area was noted but there was no localized area of tenderness. No definite motor weakness of the lower extremities was present. Moving the legs, however, caused pain in the back. The sense of position was intact and sensation to pain was undiminished. There was definite hyperesthesia

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Submitted May 21, 1957.

to touch over the inner aspects of the thighs. A large, tender deep-lying, nonfluctuant mass was palpated in the left anterior axillary line. The bladder was greatly distended; 1250 cc. of urine was removed by catheter.

The important laboratory findings were the following: Leukocytes numbered 14,600 per cu. mm. of blood—neutrophils 84 per cent, small lymphocytes 8.5 per cent, large lymphocytes 2.5 per cent, monocytes 4 per cent and eosinophils 1 per cent. The hemoglobin content was 10.2 gm. per 100 cc. and erythrocytes numbered 3,850,000 per cu. mm.

The spinal fluid was xanthochromic and it contained 51 cells per cu. mm., 85 per cent of them lymphocytes and 15 per cent neutrophils. The protein content was 525 mg. per 100 cc. The pressure of fluid was 22 cm. of water; it did not increase upon jugular compression. Pantopaque® was introduced and a complete block at the level of the first lumbar vertebra was noted radiographically.

The patient was given 600,000 units of procaine penicillin G, 200,000 units of buffered crystalline sodium penicillin G, 0.50 gm. of streptomycin and 0.50 gm. of dihydrostreptomycin intramuscularly and was taken to the operating room four hours after admittance. An incision was made exposing the spines and lamina of the twelfth thoracic and the first lumbar vertebrae. The subcutaneous tissues were edematous and there was little bleeding. Upon removal of the lamina exposed, a large reddish mass was noted. It was ruptured in an attempt to expose it further and it was observed to be an abscess containing approximately 10 cc. of greenish yellow pus. Cultures were made of the pus. After the area about the lesion was aspirated, it was washed with saline and penicillin solution. The dura appeared normal, and the cord seemed decompressed by the procedure. Two gauze packs impregnated with bismuth tribromphenate were placed in the extradural space, and the skin was closed with interrupted wire retention sutures. Hemolytic staphylococcus grew on the culture.

The postoperative course was uneventful. Catheterization of the bladder was necessary three times. On the eighth postoperative day, the axillary mass was fluctuant and it was incised and drained of 45 cc. of seropurulent material. The patient stayed 11 days in hospital and during that time received 600,000 units of aqueous solution of procaine penicillin and 0.5 gm. of streptomycin every 12 hours, given intramuscularly. At the time of discharge, she had 75 cc. of residual urine after voiding. Upon neurological examination two months after operation, no abnormalities were noted. There was no residual urine.

SUMMARY

A case of epidural abscess is reported. The condition is rare, but if it is kept in mind in all cases of severe pain in the back and meningeal irritation, and then a history of previous infection is obtained, the diagnosis can almost always be made by information supplied by spinal fluid examination. If operation is done early enough in the course of the disease, prognosis is good.

5700 Broadway, Oakland 18 (Newton).

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"Stiff-Man" Syndrome—Progressive Fluctuating Muscular Rigidity and Spasm

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A PATIENT with symptoms and signs not identifiable with any disease known to the author and, perhaps, not previously described, was observed. A survey of pertinent literature gave no helpful clues. While the patient was being studied, Moersch and Woltman[4] described a small series of 14 similar cases observed over some 30 years at the Mayo Clinic and reported for the first time.[4] They knew of no other such patients and could not fit their findings into an accepted diagnosis.

The following case is presented to call further attention to the syndrome and its possible treatment.

REPORT OF A CASE

The patient, a 36-year-old white, married citrus rancher, sought medical advice because of "trouble with my legs and arms." It was difficult for him to date the onset of illness. He believed that he had had recurring aching pains and stiffness in his back and shoulders over the preceding 10 years, the episodes growing more frequent and severe. During the previous year the symptoms had spread to the arms and legs and a definite stiffness and jerkiness of movement had been noticed. More recently he had begun to notice impairment of walking and, less frequently, impairment of ability to carry objects. He had become aware that although his strength seemed unimpaired he could not trust the control of his muscles. He illustrated by saying that he could easily lift and carry an 80-pound bag of fertilizer but, quite inexplicably and with no sense of tiring, he would suddenly fall in complete collapse after carrying it

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From Cottage Hospital, Santa Barbara.

Submitted May 7, 1957.

some 15 or 20 feet. Then a moment later he would stand, rise, lift the burden and walk on. He told of similar but less frequent episodes of unexpectedly dropping either light or heavy objects he was carrying in his arms. Moderate aching pains and stiffness were nearly always present diffusely through arms, legs, upper back and the back of the neck and shoulders. The aching, spotty and irregular, became more severe and gradually actual stiffness became more pronounced. Except for the episodes mentioned, he felt that his strength remained unimpaired—if the stiffness did not interfere. He did not consider himself ill.

Seven years before, he had had appendectomy for uncomplicated acute appendicitis. During World War II he had served in Hawaii, the Philippines, Guadalcanal and New Guinea. He had been shot in the right foot but received only an uncomplicated flesh wound. During his service he had also had tonsillitis and, later, dengue fever with complete recovery. He had always worked on ranches and during the preceding ten years had had intermittent exposure, outdoors, to chemical dusts such as DDT and 2-4 D. The dusts were all routinely used commercial products, never to the patient's knowledge causing acute illness.

The family history had no bearing on the illness.

Upon physical examination it was observed that the temperature, pulse, respirations and blood pressure were consistently within normal limits. The right upper eyelid drooped very slightly. Cranial nerves were intact. No abnormalities of the pupils and fundi of the eyes were noted. Deep reflexes were normally active and equal bilaterally. Plantar responses were normal. Abdominal and cremasteric reflexes were intact. Sensation was unimpaired. All muscles of the shoulder groups, the entire back and upper and lower legs seemed quite hard and tense. From time to time, on one side or the other, isolated groups of these muscles were noted to be almost rigid—to remain so a few hours or days and then return to the ordinary tense state. No regularity of such changes could be determined.

The result of a test of the blood for syphilis was negative. Erythrocytes numbered 5.5 million per cu. mm. and the hemoglobin content was 16.0 gm. per 100 cc. Mean corpuscular hemoglobin was 29.2 micromicrograms. Leukocytes numbered 11,950 per cu. mm.—43 per cent neutrophils, 2 per cent stabs, 39 per cent lymphocytes, 3 per cent monocytes, 10 per cent eosinophils, and 3 per cent basophils. (Several months later erythrocytes numbered 5.03 million per cu. mm. Hemoglobin content was 15.4 gm. per 100 cc. The hematocrit determination was 39 per cent; mean corpuscular hemoglobin, 31 micromicrograms; mean corpuscular volume, 79 cubic microns; mean corpuscular hemoglobin content, 39 per cent. Leukocytes numbered 13,200 per cu. mm.—neutrophils 49 per cent, stabs 4 per cent, lymphocytes 36 per cent, monocytes 4 per cent, eosinophils 6 per cent, and basophils 1 per cent.)

Results of urinalysis were within normal limits. No parasites were noted in a specimen of the stool and a guaiac test was negative for blood.

The sedimentation rate (Westergren) was 1 mm. per hour. Agglutination was negative for brucellosis. Nonprotein nitrogen content was 33 mg. per 100 cc. of serum. No lupus erythematosus cells were found in the blood. Serum potassium content was 5.6 mEq. Fasting blood sugar was 120 mg. per 100 cc.; total protein was 6.1 gm. per 100 cc.—4.1 gm. albumin and 2.0 gm. globulin. Results of skin testing with coccidioidin and histoplasmin were negative; with tuberculin, positive.

The basal metabolic rate was minus 23.

Coproporphyrin in the urine for 24 hours was within a normal range; uroporphyrin and porphobilinogen not present.

No abnormalities were noted in an electrocardiogram.

Results of roentgen examination were: No evidence of pulmonary or pleural disease; heart and mediastinal structures normal in appearance; no evidence of spinal fracture or dislocation or of bone or joint destruction; slight marginal osteoarthritic spur formation in the thoracic spine; numerous small calcifications in the spleen.

No satisfactory diagnosis could be made, and various therapies were tried on an empirical basis. These included administration of salicylates, codeine, sedatives, prednisone, chlorpromazine, physiotherapy, psychotherapy and placebos. None made the slightest difference, and the patient continued to have unexpected falls and to drop objects. After five months, Flexin® (zoxazolamine, 2-amino-5-chlorobenzoxazole) was administered and the dose gradually was raised to 2.0 gm. a day. In the ensuing four months to the time of this report, the patient insisted that his condition was improved; there were no falls or dropping of objects. Upon examination of the muscles, however, no change was noted.

DISCUSSION

The outstanding features of this case, as in the few others like it that have been reported, were the progressive muscular disability, recurring rigidity of muscles, the patient's falling like a "wooden man" and the fact there was no ascertainable cause for the syndrome. What caused the mild eosinophilia and leukocytosis, conditions not noted in other cases, is not known. Slightly high fasting blood sugar also occurred in one of the other reported cases. In addition, the presence of reducing substances in the urine was observed in four of the reported cases. That and the fluctuating intensity of symptoms led Moersch and Woltman[4] to say, "A metabolic basis for the malady should be considered." The only other abnormality they noted in laboratory studies was a high basal metabolic rate (plus 56, plus 65, plus 77) in three of four patients given this test. "The high rates," these investigators said, "were attributed to muscular activity, since there was no other evidence of hyperthyroidism." In two cases in which muscle biopsy was done, no pathologic changes were observed.

The response to Flexin in the present case was definite, but incomplete. Stiffness, subjectively evaluated, was less and no falls or dropping of objects occurred after administration of the drug was started. Balance in walking, originally very poor, was slightly better but was still poor. Objectively, there was no change in the muscles.

Flexin, a recently introduced mephenesin-like drug chemically unrelated to mephenesin, has been found to be of help in preventing or relieving spasm in voluntary muscles. The site of action is thought to be within the central nervous system upon polysynaptic pathways, where it causes depression with resultant relief of muscular spasm.[3] It is not believed to act upon muscle, the myoneural junction, motor nerves or monosynaptic reflex arcs. Use of it has been reported in rheumatic diseases,[5] in cerebral palsy[1] and in a variety of neurological disorders due to disease in either the brain or spinal cord.[2] A majority of the patients were appreciably helped. Patients with brain disorders were not helped as much as those with spasticity due to lesions of the upper motor neuron variety. Toxic reactions (chiefly gastrointestinal) generally were minor and all were reversible upon discontinuance of the drug.

SUMMARY

A case of "stiff-man" syndrome (progressive fluctuating muscular rigidity and spasm) in which treatment with Flexin was moderately helpful is reported.

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Successful Prochlorperazine Therapy Following Chlorpromazine-Induced Jaundice

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SINCE CHLORPROMAZINE came into general use by physicians in the United States in 1954, chlorpromazine-induced jaundice has been reported in a small number of patients.[1-4] Because of the structural similarity of chlorpromazine and prochlorperazine, and the fact that they are used in similar indications, the present case is of interest in that the patient became jaundiced when treated with chlorpromazine but was subsequently treated with prochlorperazine without complications.

REPORT OF A CASE

The patient, a 72-year-old white housewife, first observed December 23, 1955, had chronic bronchitis and a moderate anxiety state which was manifested in episodes of dizziness, fatigue, and "nervousness." Chlorpromazine, in daily doses of 25 mg., was administered orally for 11 days. The symptoms were dramatically relieved, and on January 4, 1956, a physical examination showed no significant abnormalities. Results of examination of the blood and urine and determination of serum protein were considered normal, and chlorpromazine therapy was discontinued.

The clinical history of the patient was of some interest. At the age of 17 she had had a stillborn infant at full term. Two spontaneous miscarriages, each after about three months' gestation, followed. At age 26 a hysterectomy was performed for reasons unknown. Hemorrhoidectomy was done at age 57 without complications. Four years before the present illness, the patient had an attack of nausea, vomiting, and diarrhea of several weeks' duration, but this was not accompanied by jaundice and cleared up without specific treatment. She had always considered herself to be extremely nervous.

On January 11, 1956, the patient had an attack of nausea, vomiting, malaise and diarrhea. The temperature was 101° F. Cremomycin®* and a bland diet were prescribed. In four days the temperature returned to normal.

By January 20 the gastrointestinal symptoms had abated, but in the afternoon of that day the temperature was 99.8° F. The patient had severe pruritus and definite jaundice. She was admitted to hospital in an acutely ill condition. The icteric index was 57 units, thymol turbidity 8 units. The result of a cephalin flocculation test was negative in 48 hours. The cell contents of the blood remained within normal limits. The urine was strongly positive for bile. Symptomatic treatment with fluids, a fat-free diet, Benadryl® (diphenhydramine hydrochloride) and mild sedatives was carried out but the patient did not improve.

On January 30 the icteric index was 63 units. Radiographs of the abdomen were considered normal, and a consultant recommended further observation and administration of steroids.

From February 1 to February 8 hydrocortisone was administered, 40 mg. four times daily, and from

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Submitted May 27, 1957.

*Each 30 cc. contains: "Sulfasuxidine" succinylsulfathiazole, 3.0 gm.; colloidal kaolin, 3.0 gm.; pectin N.F., 0.3 gm.; neomycin sulfate, 300 mg.

February 8 to February 18, 20 mg. four times daily. Appetite and general health seemed to improve. The alkaline phosphatase, as determined during this time was 15 units and serum bilirubin 8 mg. per 100 cc. The cell content and protein levels in the blood were within normal limits. No abnormalities were noted in radiographs of the gastrointestinal tract.

On February 18 laparotomy was done. The liver was firm and blackish-green. The gallbladder and common bile duct were empty. Biopsy of specimens taken from the liver indicated a decided pericentral bile stasis within the intralobular bile capillaries and Kupffer cells. The bile canaliculi were filled with bile pigment. The central veins were not dilated, and there appeared to be little, if any, increase in the inflammation of the cells of the portal region. A few lymphocytes were present in the portal connective tissue, but there was no increase in the portal connective tissue itself. In one area a few lymphocytes were seen in the sinusoids of the liver. Other than bile stasis with some secondary changes in adjacent cells, no pathologic change was noted. The pathologic diagnosis was: Pronounced bile stasis of the liver, of unknown cause.

The patient recovered promptly from the operation and left the hospital a week later.

Loss of weight continued and icterus increased. The icteric index, as determined at monthly intervals, averaged 100 units. Pruritus was controlled fairly well with antihistamines, atropine and cold applications.

In July, large amounts of sugar were added to the diet. By coincidence or otherwise, jaundice began to clear, and a slow but progressive weight gain began. By the middle of October the patient appeared well and the results of laboratory examinations were within normal limits.

Later in the fall of 1956, episodes of nervousness similar to those that had occurred before were noted. Sedation and psychotherapy did not help. Some kind of tranquilizing drug was felt to be indicated, but chlorpromazine was not considered because of the earlier chlorpromazine-induced jaundice. On November 26, 1956, prochlorperazine therapy was started after a thorough series of liver function studies. The drug was given from November 26 until November 30 in 5 mg. doses twice a day. The patient noted complete relief of all symptoms. At the request of the patient the dose was increased to 5 mg. three times a day, and this regimen was continued to January 28, 1957. Jaundice did not occur and repeated liver function tests showed no abnormalities.

SUMMARY

Severe jaundice occurred in a 72-year-old white woman nine days after discontinuance of chlorpromazine, which had been given for only a short time and in small amount. No beneficial results were observed when the patient was treated with steroids, but when large amounts of sugar were added to the diet, she promptly recovered. Prochlorperazine was administered a year later for the nervousness that had necessitated chlorpromazine. The patient was promptly relieved and then continued to take prochlorperazine for more than two months without evidence of hepatic damage.

205 Walnut Avenue, San Diego 3.

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EDITORIAL

Joint Blood Council

The Joint Blood Council is a voluntary, nonprofit organization embracing the five national associations principally concerned with the procurement, processing, preservation and distribution of human blood and its derivatives. These are the American Association of Blood Banks, American Hospital Association, American Medical Association, American National Red Cross and American Society of Clinical Pathologists.

From World War II until the outbreak of hostilities in Korea in the summer of 1950, blood banks kept growing and increasing in number and variety, but there was little coordination either technically or administratively on a local or national basis. Conflicts arose between the Red Cross and the private banks in the commercial, community and hospital categories. Seeking a way out of this confusion of aims and interests, the Medical Policy Committee of the Red Cross under pressure called a meeting which led to the Boston Agreement of 1950. Other organizations hoping to insure the shipment of sufficient whole blood to Korea sent representatives to Boston. The American Association of Blood Banks (representing the California Blood Bank System), the American Hospital Association, the American Medical Association (representing the C.M.A. Committee on Blood Banks), and the American National Red Cross all later ratified the agreement. It provided for free exchange of blood between Red Cross blood centers and other blood banks on a unit for unit basis and urged adherence to blood banking standards to be set by the National Institutes of Health.

Military and civilian blood requirements were met during the Korean War and the Boston Agreement remained the official policy of the organizations that signed it. However, different interpretations of its language and intent led to more conflict. There was clear need for something more; and the parties to the Boston Agreement, together with the American Society of Clinical Pathologists, decided there should be a voluntary national organization to insure an adequate supply of blood in peace or emergency and to stimulate blood research. Thus the Joint Blood Council came into being on March 16, 1955. Subsequently it opened an office in Washington, D. C. This entire program was stimulated by the A.M.A. through passage of the Ludwig Resolution introduced to the A.M.A. House of Delegates by Dr. J. Lafe Ludwig of the California Medical Association in June 1953. The resolution is as follows:

"Whereas, The ready availability of blood and blood derivatives has become a vital necessity to modern practice in both the civilian and military populations and therefore a matter of highest concern to the physician; and

"Whereas, The independent operation of blood banks of all degrees of excellence throughout the nation by many different agencies, some lay and some medical, has resulted in some confusion and friction between blood banks and organizations operating blood banks; and

"Whereas, The general public is confused, irritated and critical of the varying methods of operation among blood banks in the same or contiguous areas; and

"Whereas, The professional aspects of the drawing of blood, its fractionation and its use as a therapeutic tool must be under medical control, and such medical control on a national scale logically should be a function of the American Medical Association; and

"Whereas, The American Red Cross has already been designated by the government as the official blood recruitment and distributing agency for the military services; and

"WHEREAS, The present American Red Cross program of so-called 'free' blood without requirement for replacement has made collection of adequate supplies for civilian use difficult, has been a tremendous drain on Red Cross funds which might be better devoted to purposes more consistent with Red Cross functions, and is inaccurate to the extent that blood is not free but is paid for by the community at large in contributions and by the government through tax revenues; now therefore be it

"RESOLVED, That this House of Delegates urge the establishment of a coordinated national blood bank program operated by the American Medical Association, the American National Red Cross and other qualified organizations interested in blood banking, on the following basis:

1. Medical aspects of blood banking shall be under the exclusive control of the medical profession.
2. Business administration, donor recruitment, stockpiling for civil defense and disaster relief, allocation of supplies to meet military needs, and public relations shall be matter of joint concern.
3. The supply of blood shall be maintained on a replacement basis.
4. The national blood bank program shall be a financially self-supporting but nonprofit arrangement operated in the national interest but with the sole aim of promoting the widest availability of safe, usable blood and its derivatives."

The primary purpose of the Council is to establish a national blood program in order to assure an adequate supply of blood and blood derivatives to the civilian and military population at all times. Corollary purposes shall be to:

1. Develop ways and means to make blood and its derivatives available to all persons in the United States;

2. Stimulate and advise on areas of research in the collection, preservation and use of blood and its derivatives;

3. Collect, study and disseminate information on blood and blood derivatives;

4. Establish minimal standards for voluntary accreditation of blood banks and to establish a means of inspection for accreditation;

5. Coordinate existing systems and encourage and institute plans where necessary for the exchange of blood or blood credits between accredited banks on a state, regional and national basis;

6. Encourage the public by appropriate means to donate blood for civilian and defense requirements and to assist in the establishment of uniform national publicity policies;

7. Distribute annually a list of blood banks accredited by this organization;

8. Serve, upon invitation, as a fact-finding and arbitration body in disputes arising from the collection and use of blood and its derivatives;

9. Serve upon invitation as an advisory group to federal and military agencies having to deal with blood and its derivatives.

The Council itself does not procure blood, does not process or store it, and will not itself engage in blood research. Operating primarily through its member institutions it tries to stimulate all worthwhile operations in the entire field of blood.

As to philosophy on the question of charges, the Council by-laws state: "Since blood is derived from human beings only, it should not be sold for profit. However, all services rendered in the collection, storage and administration of blood cost something and are paid for by or on behalf of every recipient of such services. When a service charge is made to the recipient, it may include all or part of the costs of operation, including normal depreciation but the intentional realization of substantial profit is not approved."

As to the accomplishments of the Council, it was disappointing to California doctors that the Council did not take steps toward becoming the contracting agent with the Department of Defense before the recent and current serum albumin project was instigated. This matter was called to the attention of the A.M.A. House of Delegates in June of 1957 by a resolution offered by Dr. Robertson Ward of the California Medical Association. However, it is well to point out that more than 5,200 hospital blood banks and other blood transfusion services have received or are now receiving by mail a questionnaire from the Joint Blood Council, representing a major effort to provide a guide to the vast and almost uncharted sea of blood banking and related activities in the United States. This questionnaire represents a second phase of the Council's efforts to bring the blood transfusion picture into proper focus. The first part was a postal card survey of blood usage during the calendar year 1956. This survey produced some eye-opening information on the sources of blood in the United States. It also supplied the first reliable information on how much blood is being transfused in the nation.

The Council itself grew out of the need for closer cooperation among facilities which handle blood and between the independent blood banks and the regional and national banking systems. Its current survey of blood transfusion services is a step in that direction. The Council's preliminary research has firmed its conviction that blood transfusion services are operating under handicaps that cry out for remedy; likewise the Council's realization that remedies can be applied only after proper diagnosis. The current questionnaire will help clarify the symptoms that will make diagnosis and remedy possible, but its success depends greatly on the number and quality of replies to the questionnaire. Thus the Council emphasizes that the sooner its questionnaire is filled out, analyzed and interpreted, the sooner will there be a general fund of information necessary to the proper development of a national blood program—a well known and respected transfusion service to the people of the United States through the medical profession.

Postgraduate Education Courses for 1958 Annual Session

An innovation in C.M.A. meetings is being planned for the 1958 Annual Session. It is proposed to offer three postgraduate education courses of 9 hours each in connection with the scientific meetings. They will be given from 9 a.m. until noon, Monday, Tuesday and Wednesday, April 28 to 30. It is expected that official credit would be given for these courses.

As now planned, each of the three medical schools in Southern California would put on a course of three hours daily for the three days of the meeting.

Present plans call for University of Southern California to handle a course on liver diseases. U.C.L.A. Medical School would present a course on abdominal pain and College of Medical Evangelists would take charge of a series on management of trauma.

It is planned to make an admission charge for these courses, although the full details remain to be worked out.

Further announcements will be made when plans are completed.

California MEDICAL ASSOCIATION

NOTICES & REPORTS

PROPOSED CONSTITUTIONAL AMENDMENT

(First Publication)

Under the terms of the C.M.A. Constitution, amendments to the Constitution must lie on the table until "the next session, other than a special session, of the House of Delegates." During this interim the proposed Constitutional amendment must be published "at least twice in separate issues of the official journal of the Association."

The proposed Constitutional amendment below was introduced at the 1957 session of the House of Delegates and will be considered and acted upon at the 1958 session of the House of Delegates. At that time, "if two-thirds of the Delegates present and voting vote in favor thereof, the same shall be adopted." (Article VIII, Section 3, Constitution.)

RESOLUTION

WHEREAS, The physician member population of the State of California has enjoyed tremendous growth in recent years; and

WHEREAS, These physician members are entitled to representation in the offices and council of the C.M.A.; and

WHEREAS, The Constitution of the C.M.A. as it is presently constituted, does not adequately provide this representation; and

WHEREAS, In order to grant all members the representation they are entitled to, the Constitution of the C.M.A. must be amended;

NOW, THEREFORE, The following amendments of the Constitution of the C.M.A. are herewith presented to this House of Delegates in accordance with Article VIII, Section 3, of said Constitution.

AMENDMENTS

ARTICLE III

Part B—Council

Section 9—Composition

The Council shall consist of:

(a) Each Councilor District, as specified in this Constitution, shall be entitled to one Councilor for each 1,000 members, according to its membership as of the first day of November of the preceding year; provided that each Councilor District shall be entitled to a minimum of one Councilor.

(b) The President, President-Elect, Speaker and Vice-Speaker.

In addition, the Secretary-Treasurer, and Editor, ex-officio, without the right to vote.

(c) District Councilors shall be elected from the Councilor Districts.

(d) Elected Councilors from any one District shall not, at any time, exceed forty per cent (40 per cent) of the total Council membership.

Section 10—Councilor Districts

There are ten districts as follows:

District Number One, comprising San Diego County.

District Number Two, comprising Imperial, Orange, Riverside, San Bernardino, Mono and Inyo Counties.

District Number Three, comprising the County of Los Angeles.

District Number Four, comprising Ventura, Santa Barbara and San Luis Obispo Counties.

District Number Five, comprising Kern, Kings, Tulare, Fresno, Madera, Mariposa, Merced, Stanislaus, San Joaquin, Calaveras and Tuolumne Counties.

District Number Six, comprising Monterey, San

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District Number Eight, comprising Alameda County and Contra Costa County.

District Number Nine, comprising Marin, Solano, Napa, Sonoma, Lake, Mendocino, Humboldt and Del Norte Counties.

District Number Ten, comprising Sacramento, Amador, Alpine, Eldorado, Placer, Nevada, Sierra, Yuba, Sutter, Yolo, Colusa, Glenn, Butte, Plumas, Tehama, Trinity, Shasta, Lassen, Modoc and Siskiyou Counties.

Section 11—Election of Councilors

District Councilors shall be elected by vote of the delegates from each district in the manner and at the time specified in the by-laws; provided, however, that at the first meeting of the House of Delegates after a District Councilor has been selected, his name shall be submitted to the House by the delegates from the district, and (1) if there is no challenge by any delegate then the Speaker shall declare his election completed, and (2) if any delegate shall challenge the election on any ground, including fitness of the nominee of the district to serve as a District Councilor, the questions presented by the challenge shall be submitted to a Qualifications Committee consisting of the President, President-Elect and one delegate, appointed by the Speaker, from the Councilor District involved. The Qualifications Committee shall consider all grounds upon which the nominee is challenged and report back to the House. If the committee reports in favor of confirming the nominee's election, the Speaker shall declare him elected. If the committee reports against confirming the nominee's election, a three-fourths affirmative vote shall be necessary to sustain the report of the committee, in which event the nominee shall be ineligible to serve as the District Councilor and the delegates from the district shall immediately proceed to the selection of another nominee for the vacant office. If an adverse report of the Qualifications Committee is not sustained then the nominee shall be declared elected by the Speaker.

Section 14—Election of Councilors on Adoption of Amendments to This Constitution

Upon the adoption of Amendments to Article III, Part B, Sections 9, 10, 11 and 14 of this Constitution, the Delegates from each of the Councilor Districts shall proceed to elect District Councilors as follows:

At the annual meeting at which these Amendments to the Constitution are adopted, each District shall elect the number of Councilors to which the District is entitled, in accordance with Section 9, as amended, to serve for a term of three years.

Upon the adoption of the Amendments to this Constitution and the election of District Councilors, in accordance with the said Amendments, the terms of office of the Councilors-at-Large, holding office at the time of the adoption of the Amendments, will immediately cease and terminate.

In Memoriam

Aldrich, Walter Seward. Died in Sacramento, September 7, 1957, aged 56. Graduate of Northwestern University Medical School, Chicago, 1930. Licensed in California in 1930. Doctor Aldrich was a member of the Sacramento Society for Medical Improvement.

✣

Boyer, Kenneth Harold. Died September 18, 1957, aged 54, of heart disease. Graduate of Northwestern University Medical School, Chicago, 1931. Licensed in California in 1931. Doctor Boyer was a member of the Los Angeles County Medical Association.

✣

Marks, Julian Barnett. Died April 4, 1957, aged 65. Graduate of the University of Illinois College of Medicine, Chicago, 1918. Licensed in California in 1936. Doctor Marks was a member of the Los Angeles County Medical Association.

✣

Mirviss, Sophie. Died July 31, 1957, aged 47. Graduate of the University of California School of Medicine, Berkeley-San Francisco, 1938. Licensed in California in 1938. Doctor Mirviss was a member of the San Francisco Medical Society.

✣

Plank, Tillman Howard. Died August 15, 1957, aged 85. Graduate of Chicago Homeopathic Medical College, 1896, and the University of Illinois College of Medicine, 1905. Licensed in California in 1925. Doctor Plank was a retired member of the San Francisco Medical Society and the California Medical Association, and an associate member of the American Medical Association.

✣

Sweet, Clifford Daniel. Died in Oakland, October 7, 1957, aged 72, adenocarcinoma, metastatic to the liver. Graduate of the University of California School of Medicine, Berkeley-San Francisco, 1912. Licensed in California in 1912. Doctor Sweet was a retired member of the Alameda-Contra Costa Medical Association and the California Medical Association, and an associate member of the American Medical Association.

✣

Van Fleet, Harry D. Died in Ojai, September 11, 1957, aged 66. Graduate of Baylor University College of Medicine, Houston, Texas, 1919. Licensed in California in 1919. Doctor Van Fleet was a retired member of the Los Angeles County Medical Association and the California Medical Association, and an associate member of the American Medical Association.

California Medical Association

1958 *Annual Session*

AMBASSADOR HOTEL, LOS ANGELES

April 27-30

THREE POSTGRADUATE COURSES MONDAY TUESDAY WEDNESDAY

9:00 a.m.-noon

Liver Diseases—A NINE-HOUR COURSE
U.S.C. SCHOOL OF MEDICINE

Abdominal Pain—A NINE-HOUR COURSE
U.C.L.A. SCHOOL OF MEDICINE

Management of Trauma—A NINE-HOUR COURSE
COLLEGE OF MEDICAL EVANGELISTS

A FEE WILL BE CHARGED FOR THE ABOVE COURSES

FOUR DAYS

GENERAL SCIENTIFIC MEETINGS
TECHNICAL EXHIBITS · SCIENTIFIC EXHIBITS
MEDICAL MOTION PICTURES

* * *

PRESIDENT'S DINNER DANCE

TUESDAY, APRIL 29
COCOANUT GROVE, AMBASSADOR HOTEL

* * *

HOUSE OF DELEGATES

SUNDAY, APRIL 27 AND WEDNESDAY, APRIL 30

REGISTRATION DAILY · 9:00 a.m. to 5:00 p.m. · NO REGISTRATION FEE

Please make hotel room reservations only through C.M.A. office in San Francisco
(A reservation form will be published in later issues of California Medicine)

WOMAN'S AUXILIARY
TO THE CALIFORNIA MEDICAL ASSOCIATION

Nurse Recruitment

NURSING today offers to women a variety of career opportunities surpassed by few professions. Nurses are employed in hospitals and public health agencies, business and industry, schools and universities, government agencies and departments, and in other health services. Although there are more nurses active in the profession today than ever before, many more are needed to meet the minimum health needs of our nation. The rapid growth of health insurance plans has brought about great increases in the numbers of people cared for in hospitals. New drugs and treatments have shortened the hospital stay, necessitating increased intensity and skill in the nursing care required during hospitalization.

What can be more rewarding than giving and serving when needed? This has been the privilege of thousands of members of the Woman's Auxiliary—to work with the youth of today, through our nurse recruitment program.

One of our functions is that of providing accurate and up-to-date information pertaining to nursing and nursing education, not only to students interested in nursing, but to school personnel including student counselors. Nurse recruitment was conceived fundamentally as a means of guiding young people to become educated as to the prospects for service in the choice of a career. We are all greatly concerned with the future of the nursing profession, the growth of which can be assured through a careful selection of the persons who will find professional service one of the chief ingredients of a satisfying life.

Realizing that financial difficulties often are one of the reasons why the profession is deprived of fine nurses, our Auxiliaries first established an extensive scholarship and loan program. Then we branched into recruitment, and then into sponsorship of Future Nurse Clubs. With all of this "teamwork" we now turn our thoughts to projects within the Future Nurse Clubs, such as "GEMS" (good emergency mother substitutes) which will undoubtedly be the next step in our program. This will enable the teenager to learn safety measures and cope with emergencies; it gives valuable information on infant and child care, on dangerous objects to be avoided, and on necessary procedures for acting in an emergency. In addition to teaching protection of the child, it stresses precautions to safeguard the "sitter."

The Nurse Recruitment history began in 1951 with the organization of the Student Nurse Recruitment Committee of California. It was financed and created by the California Medical Association, the California Hospital Association, and the then three large nursing organizations. Two half time directors were employed, one in the north and one in the south. They did much of the contact work, writing to schools of nursing, to medical auxiliaries, to public health nurses and to school counselors. In the beginning they often organized panels and acted as moderators. The committee had three functions: (1) to work in cooperation with interested and allied professions in the recruitment of nurses, (2) to safeguard the standards of the profession by interpretation, education and guidance in the recruitment program, and (3) to encourage service organizations to establish student nurse scholarships. In the spring of 1953 the Student Nurse Recruitment Committee was dissolved, and the first meeting of the California League for Nursing's Committee on Careers in Nursing was held.

All recruitment activities of the county society Auxiliaries are first cleared through the superintendent of schools or the board of education of the county. If they are not familiar with the program, the recruitment chairman explains our objectives and outlines our activities.

It is only because of the complete cooperation of the Auxiliary and the Careers Committee that the recruitment program functions so successfully. The National Auxiliary commends us most highly for our great contribution to recruitment, not only for the California program, *per se*, but because our results were so outstanding that our program is copied in other states and in Alaska and Hawaii.

Our Auxiliaries this past year have given 228 nursing scholarships, and are now sponsoring over ninety Future Nurse Clubs—an excellent record when one realizes that there are 154 clubs in California with 138 receiving assistance from the Auxiliary.

It is difficult to evaluate a program of such long range proportions. Increased enrollments in schools of nursing and comments of school directors indicate the positive results of recruitment. As schools open their doors this fall of 1957 teachers groan under a student load greater than they have ever had before. Worried communities and school officials are concerned over time, space and teachers to educate the largest junior and senior high school classes in history. Recruitment workers are concerned too, as it is predictable that the increase in enrollment will bring about changes in methods of recruitment. Career activities must be planned and carried out with the problems of the high schools in mind if boys and girls are to have the guidance they need in selecting careers wisely, and if nursing is to attract the best qualified students.

MRS. LEONARD D. OFFIELD
President, Woman's Auxiliary to the California Medical Association

NEWS & NOTES

NATIONAL • STATE • COUNTY

LOS ANGELES

Dr. Clayton G. Loosli, professor of Medicine and chief of the section of preventive medicine at the University of Chicago, has been appointed **dean of the University of Southern California School of Medicine.** He will assume the office in July next year.

Dr. Loosli succeeds Dr. Gordon E. Goodhart, who resigned as dean in March of 1956 to enter the private practice of psychiatry. Since that date, the School of Medicine has been directed by an interim administrative committee under the chairmanship of Dr. Thomas H. Brem.

* * *

Dr. Wilbur Bailey, Los Angeles, was elected chairman of the executive council of the American Roentgen Ray Society at the 58th annual meeting of the society last month in Chicago.

SAN DIEGO

Dr. Sidney B. Clark has been appointed assistant director of public health of San Diego County to take the place of Dr. Alvin R. Leonard, who resigned to become health officer for the City of Berkeley and clinical professor of public health at the University of California School of Public Health.

SAN FRANCISCO

Some 250 physicians attended the **Symposium on Alcoholism** at headquarters of the San Francisco Medical Society, September 28. Every aspect of alcoholism was covered by the American Medical Association's Committee on Alcoholism, marking the first time that this committee had ever attended a regional meeting. Sponsored by the A.M.A., the California Medical Association and the San Francisco Medical Society, the meeting was pronounced an outstanding success by all physicians.

* * *

Announcement of the appointment of **Dr. Rodney R. Beard,** professor of preventive medicine at Stanford University School of Medicine, to a four-year term on the National Advisory Heart Council was made recently by Surgeon General L. E. Burney of the U. S. Public Health Service. The council advises the Public Health Service and the National Heart Institute on research programs and other matters concerned with the control of heart disease.

* * *

The first annual convention of the **American Association of Medical Assistants,** which was held in San Francisco, October 4 to 6, was attended by 410 members and guests from all over the United States. This exceeded all expectations.

Mrs. Mary Kinn of Pasadena was installed as the organization's president. New directors included Mrs. Lillie Woods, of San Francisco, who is also president of the California Medical Assistants Association.

A feature of the meeting was the "California Night" reception at the Top of the Mark, held at the end of the first day, under the sponsorship of the California Medical Association, the San Francisco Medical Society and the American Medical Association.

* * *

A grant of $12,984 to Stanford University School of Medicine in support of **research on muscular dystrophy** was announced recently by the Muscular Dystrophy Associations of America. The Stanford Research project is being conducted by Dr. Laurens P. White, an instructor in the medical school.

GENERAL

The International Academy of Proctology has announced its annual cash prize and certificate of merit award contest for 1957-1958. The best unpublished contribution on proctology or allied subjects will be awarded $100 and a certificate of merit.

The formal award of the first prize and presentation of other certificates will be made at the annual convention of the International Academy of Proctology which is to be held April 11, 1958, at Hotel Del Prado, Mexico City.

The International Academy of Proctology reserves the exclusive right to publish all contributions in its official publication. All entries are limited to 5,000 words, must be typewritten in English, and submitted in five copies. They must be received no later than the first day of February, 1958. Further information may be obtained from Alfred J. Cantor, M.D., international secretary, International Academy of Proctology, 147 41 Sanford Avenue, Flushing New York.

* * *

The opening of its annual **essay contest for undergraduate medical students** has been announced by the American College of Chest Physicians. Cash awards of $500, $300, and $200 will be given as first, second and third prizes. The essays may be written on any facet of the diagnosis and treatment of diseases of the chest—heart or lungs or both.

First prize winner last year was James T. Post, a student at University of California School of Medicine, whose subject was "The Incidence of Pulmonary Tumors in Mice Exposed to Aerosols of Therapeutic Agents."

* * *

Mr. Anthon B. Robertson, formerly an executive with Sears, Roebuck and Company and Pacific Coast Paint and Varnish Company, has been named **president of California Physicians' Service.** Mr. Robertson succeeded Dr. T. Eric Reynolds of Oakland. Dr. Reynolds, who formerly held both positions, remains chairman of the board of trustees.

* * *

The American Goiter Association again is offering the **Van Meter Prize Award** of $300 and two honorable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. The award will be made at the annual meeting of the association which will be held in the St. Francis Hotel, San Francisco, June 17, 18, and 19, 1958, provided essays of sufficient merit are presented in competition.

The competing essays may cover either clinical or research investigations, should not exceed 3,000 words in length and must be presented in English. Duplicate typewritten copies, double spaced, should be sent to the secretary, Dr. John C. McClintock, 149½ Washington Avenue, Albany 10, New York, not later than February 1, 1958.

A place will be reserved on the program of the annual meeting for the presentation of the winning essay by the author if it is possible for him to attend.

POSTGRADUATE EDUCATION NOTICES

THIS BULLETIN of the dates of postgraduate education programs and the meetings of various medical organizations in California is supplied by the Committee on Postgraduate Activities of the California Medical Association. In order that they may be listed here, please send communications relating to your future medical or surgical programs to: Mrs. Margaret H. Griffith, Director, Postgraduate Activities, California Medical Association, 417 South Hill Street, Los Angeles 13.

UNIVERSITY OF CALIFORNIA AT LOS ANGELES

Surgical Anatomy. Mondays, November 18 through February 3. Twenty hours. Fee: $80.00.

Arthritis and Rheumatism. Wednesday, January 15, 1958. Nine hours. Fee: $30.00.

Management of Surgical Emergencies. Thursday, January 23, 1958. Six hours.†

Contact: Thomas H. Sternberg, M.D., Assistant Dean for Postgraduate Medical Education, U.C.L.A., Los Angeles 24. BRadshaw 2-8911, Ext. 202.

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

Symposium in Cardiovascular Disease. Santa Rosa, Wednesday, November 20. Seven hours. Fee: $15.00.

Ocular Manifestations of Systemic Disease. Wednesday to Saturday, December 4 to 7. 24 hours.†

Clinical Cardiovascular Physiology. Friday to Sunday, December 13 to 15. Twenty-one hours. Fee: $30.00.

Psychiatry. Mount Zion Hospital, Thursday to Sunday, January 9 to 12.*

Newborn and Premature (Physicians). Monday and Tuesday, January 13 and 14. Fourteen hours. Fee: $40.00

Newborn and Premature (Nurses). Wednesday, January 15. Seven hours.†

Ophthalmoscopy in General Practice and Pediatrics. Wednesday and Thursday, January 15 and 16, 1958. Fourteen hours.†

Postgraduate Dermatology Clinic. Friday and Saturday, January 17 and 18, 1958. Fourteen hours.†

Nontraumatic Emergencies. Franklin Hospital, Friday and Saturday, January 17 and 18. Fourteen hours. Fee: $40.00.

Seminars in Hematology. Children's Hospital, Saturday, January 25. Seven hours. Fee: $12.50.

Patho-Physiology of the Gastrointestinal Tract. Monday and Tuesday, January 27 and 28, 1958. Fourteen hours.†

Postgraduate Seminars in Pharmacy. Thursday to Saturday, February 13 to 15. Fifteen hours. Fee: $25.00.

Course for Physicians in General Practice. Monday through Friday, February 24 to 28, 1958. Thirty-two hours.†

Children's Hospital Medical Seminar. Saturday, March 29.*

Fundamental Principles of Radioactivity and the Diagnostic and Therapeutic Uses of Radioisotopes. Two or three month course limited to one enrollee per month. Per month, $250.00.

Contact: Seymour M. Farber, M.D., Head, Postgraduate Instruction, Office of Medical Extension, University of California Medical Center, San Francisco 22. MOntrose 4-3600, Ext. 665.

STANFORD UNIVERSITY SCHOOL OF MEDICINE

Morning Clinical Conferences, each Monday, Room 515. *Contact:* D. H. Pischel, M.D., Professor, Division of Ophthalmology, Stanford University School of Medicine, 2398 Sacramento St., San Francisco 15.

UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES

Cardiac Resuscitation. Sponsored by the Los Angeles County Heart Association each Wednesday throughout the year, 4 to 6 p.m. Residents admitted without fee. Tuition for all other physicians: $30.00. (Each session all-inclusive.)

Basic Home Course in Electrocardiography. One year Postgraduate Series, electrocardiogram interpretation by mail. Physicians may register at any time and receive all 52 issues. Fifty-two weeks. Fee: $100.00.

Advance Home Course in Electrocardiography. One year postgraduate series, electrocardiogram interpretation by mail. Fifty-two issues: $85.00. Physicians may register at any time.

Contact: Phil R. Manning, M.D., Director, Postgraduate Division, University of Southern California School of Medicine, 2025 Zonal Avenue, Los Angeles 33. CApital 5-1511.

COLLEGE OF MEDICAL EVANGELISTS

Vue-Vox Postgraduate Refresher Courses. Courses are made up of four or more half-hour lectures each, recorded on hi-fi magnetic tape and illustrated by 35-mm. filmstrips or slides in full color, and adapted for use on any standard tape recorder and filmstrip or slide projector, automatic or manual.

Contact: Paul D. Foster, M.D., chairman, Committee on Audio-Visual Courses, College of Medical Evangelists School of Medicine, 316 North Bailey St., Los Angeles 33.

CALIFORNIA MEDICAL ASSOCIATION POSTGRADUATE COURSES

POSTGRADUATE INSTITUTES—1958

San Bernardino, Riverside and Orange Counties, in cooperation with College of Medical Evangelists, Arrowhead Springs Hotel, San Bernardino County, February 13 and 14, 1958. Chairman: Elmer O. Carlson, M.D., 756 N. Euclid Ave., Ontario.

West Coast Counties, in cooperation with UCLA School of Medicine, Golden Bough Theater and La Playa Hotel, Carmel, March 6 and 7, 1958. Chairman: Howard C. Miles, M.D., 535 E. Romie Lane, Salinas.

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†Fee to be announced.
*Hours and Fees to be announced.

San Joaquin Valley Counties, in cooperation with Stanford University School of Medicine, Hotel Californian, Fresno, March 20 and 21, 1958. Chairman: Henry L. Tiesche, M.D., 1759 Fulton St., Fresno.

North Coast Counties, in cooperation with USC School of Medicine, Hoberg's Resort, Lake County, April 10, 11 and 12, 1958. Chairman: Alfred A. Thurlow, Jr., M.D., 185 Sotoyome Ave., Santa Rosa.

Contact: One of the chairmen listed above, or Mrs. Margaret H. Griffith, Director, Postgraduate Activities, California Medical Association, 417 So. Hill Street, Los Angeles 13. Madison 6-0683.

* * *

Audio Digest Foundation, a nonprofit subsidiary of the C.M.A., now offers (on a subscription basis) a series of hour-long tape recordings designed to keep the physician abreast of current happenings in his particular field. Composed of practice-useful abstracts from 600 leading journals, with short lectures and editorial comments from prominent physicians, Audio Digest offers programs covering general practice, surgery, internal medicine, obstetrics and gynecology, and pediatrics.

Contact: Claron L. Oakley, editor, 1919 Wilshire Blvd., Los Angeles 57.

Medical Dates Bulletin

NOVEMBER MEETINGS

Society Graduate Internists Annual Symposium, November 15 to 17, Statler Hotel and Los Angeles County General Hospital. *Contact:* Wallace Frasher, M.D., secretary, 1200 N. State St., Los Angeles.

State Board of Medical Examiners Oral Examination, November 16, San Francisco.[‡]

State Board of Medical Examiners Oral and Clinical Examination for Foreign Graduates, November 17, San Francisco[‡]

Sonoma County Heart Association Fourth Annual Symposium on Cardiovascular Disease, November 20, 9 a.m., Santa Rosa. *Contact:* Jack Froom, M.D., chairman, 210 Fourth St., Petaluma.

Western Division of American Psychiatric Association in conjunction with West Coast Psychoanalytic Societies, November 20 to 24, Hotel Statler, Los Angeles.

DECEMBER MEETINGS

Fourth Bahamas Medical Conference, Fort Montagu Beach Hotel, Nassau, Bahamas, December 1 to 15. *Contact:* B. L. Frank, M.D., 1290 Pine Ave., West, Montreal, Canada. Reservations made through Mr. John L. Cota, general manager, Fort Montagu Beach Hotel.

Monterey County Heart Association Symposium on Heart Disease Fourth Annual Postgraduate Meeting, December 5 and 6, House of Four Winds, Monterey. *Contact:* Mrs. Joseph R. Costa, executive secretary, Box 1329, Monterey.

American College of Chest Physicians Postgraduate Course on Diseases of the Chest, Ambassador Hotel, Los Angeles, December 9 to 13. *Contact:* Alfred Goldman, M.D., chairman, 416 N. Bedford Drive., Beverly Hills.

1958 MEETINGS

California Conference on Rural Health Annual Meeting, Bakersfield Hacienda, Bakersfield, January 21 and February 1. *Contact:* Glenn Gillette, California Medical Association, 450 Sutter St., San Francisco 8.

Orange County Heart Association 1958 Annual Symposium on Heart Disease, January 25, all day, Disneyland Hotel, Anaheim. *Contact:* Howard G. Buswell, executive director, P. O. Box 1704, Santa Ana.

Colorado State Medical Society Midwinter Clinical Session, February 18 to 21, Shirley-Savoy Hotel, Denver. *Contact:* Harvey T. Sethman, executive secretary, 835 Republic Bldg., Denver 2.

Los Angeles Radiological Society Tenth Annual Midwinter Conference, Biltmore Hotel, Los Angeles, February 22 and 23, 9:30 a.m. *Contact:* John H. Eaton, M.D., secretary-treasurer, 65 N. Madison Ave., Pasadena 1.

International College of Surgeons 23rd Annual Congress of U. S. and Canadian Sections 11th Biennial International Congress, March 9 to 13, Hotel Ambassador, Los Angeles. *Contact:* J. M. de los Reyes, M.D., general chairman, 2010 Wilshire Blvd., Los Angeles 57.

California Society of Plastic Surgeons Annual Meeting, March 20 to 22, Del Monte Lodge, Del Monte, California. *Contact:* Benjamin F. Edwards, M.D., 2200 Santa Monica Blvd., Santa Monica.

Valley Children's Hospital Spring Clinics, April 11 and 12. Roosevelt High School Auditorium, Fresno. *Contact:* Valley Children's Hospital, Fresno.

American College of Obstetricians and Gynecologists, April 21 to 23, Los Angeles. *Contact:* John C. Ullery, M.D., secretary, 15 South Clark St., Chicago 3.

American Academy of Pediatrics Annual Spring Session, Hotel Statler, New York City, April 21 to 23. *Contact:* W. J. Becker, business manager, 1801 Hinman Ave., Evanston, Ill.

California Medical Association Annual Meeting, Ambassador Hotel, Los Angeles, April 27 to 30. *Contact:* John Hunton, executive secretary, 450 Sutter St., San Francisco 8, or Ed Clancy, director, Public Relations, 417 South Hill St., Los Angeles 13.

South Dakota Medical Association Annual Meeting, May 17 to 20, Huron, South Dakota. *Contact:* John C. Foster, executive secretary, 300 First National Bank Building, Sioux Falls, S. D.

Western Branch, American Public Health Association Annual Meeting with Canadian Public Health Association, May 18 to 23, Vancouver, B. C. *Contact:* Mrs. L. Amy Darter, secretary-treasurer, 2151 Berkeley Way, Berkeley 4.

American Laryngological Association, May 19 to 20, San Francisco. *Contact:* James H. Maxwell, M.D., secretary, University Hospital, Ann Arbor, Michigan.

American Broncho-Esophagological Association, May 21 to 23, San Francisco. *Contact:* F. Johnson Putney, M.D., secretary, 1719 Rittenhouse Square, Philadelphia, Pa.

California Heart Association Annual Meeting, Scientific Session and Directors Meeting, Hacienda Motel, Fresno, May 23 to 25. *Contact:* J. Keith Thwaites, executive director, 1428 Bush St., San Francisco.

American College of Chest Physicians 24th Annual Meeting, June 18 to 22, San Francisco. *Contact:* Mr. Murray Kornfeld, executive director, 112 East Chestnut St., Chicago 11, Ill.

[‡] Contact: Louis E. Jones, M.D., 1020 N Street, Sacramento 14.

INFORMATION

You Can Help Medical Education Pay Its Own Way

THOMAS J. CUNNINGHAM, General Counsel, University of California

AMERICA'S MEDICAL SCHOOLS are in serious financial trouble. The reasons are apparent: (1) enrollments have increased sharply, (2) medical education costs have skyrocketed, (3) income has lagged, and (4) some of the best faculty members are being lured away from teaching and research by better salary offers elsewhere.

The situation would be much worse if it were not for an abundant shower of gifts from philanthropic foundations, federal and state governments, business and industry, and generous individuals. Such gifts range all the way from the Ford Foundation's splendid donation of $90,000,000 last year in support of privately endowed medical schools to a crumpled envelope containing two $1 bills and an anonymous note, "For cancer research," received by a West Coast university.

But a curious fact was noted in the 1956 annual report of the National Fund for Medical Education: While contributions from corporations and foundations increased substantially, *contributions from individual physicians decreased.*

Why should this be? Members of the medical profession are more keenly aware of the plight of our medical schools than anyone else.

In my position I have examined many gifts for educational purposes. I have talked to numerous individuals desiring to contribute funds in ways that would accomplish the most good.

In my opinion the average physician is not as aware of the legal techniques of philanthropy as is the average businessman or corporation. In other words, he is uncertain of what steps to take to aid medical education and at the same time obtain substantial tax benefits.

In this article, therefore, I propose to outline a few of the more important ways in which physicians can contribute to medical schools and at the same time realize substantial tax savings.

The medical profession can also help in another important way. Physicians are sometimes asked for suggestions by patients who wish to aid medical education. If the physician knows the several ways in which gifts can be made, he is in a much better position to assist his patients.

But first, let us examine in more detail the present crisis in medical education and the reasons behind it. America's 82 great medical schools today teach 29,000 medical students, graduating more than 6,800 annually. They train 11,500 graduate physicians, residents and interns, and give refresher courses to 21,500 physicians. They instruct 19,000 dental, pharmaceutical and nursing students—plus 8,000 nonmedical students. They annually provide 2,300,000 persons with medical care (valued at $115,000,000). And finally, they furnish leadership and counsel for hundreds of health agencies.

But with a national population growth of more than 2,500,000 persons annually—a net gain of 7,000 a day—America's medical schools are being called upon to supply a larger number of professional health experts and a greater volume of medical care than ever before.

From 1910, when Dr. Abraham Flexner's famous report led to the overhauling of America's medical schools, medical education has been in an ever-challenging period of transition. Although we have forged to world leadership in medicine, our financial resources in support of it have not kept pace. In most cases a medical school will consume from 30 to 40 per cent of the parent university's income—yet enroll only about 10 per cent of the students.

According to the Association of American Medical Colleges, the estimated medial expense of a medical student is $2,178 per year in privately supported schools and $1,160 (resident) to $1,930 (nonresident) at tax-supported schools. More scholarships are badly needed so that medicine, as a career, will not be denied to any worthy young man or woman of great talent but modest means.

No other form of education is as expensive as medical education with its longer period of training, high ratio of teachers to students, new and complicated teaching techniques. Medical education is four to five times as expensive as general university education—a factor in keeping medical school salaries low. Because of this glaring fact, many of our most competent teaching and research men are being lost to industry, government and private practice.

Obviously, more money is needed to maintain medical education at its present level. Federal subsidy has been suggested, but experience has demonstrated that this method could effect controls over teaching programs and professional practices that might be detrimental to the good of the nation.

While President of Columbia University in 1949, and recognizing that "medical education is a national problem which should be met on a national basis," Dwight D. Eisenhower said:

"The financial problems of the medical schools should be solved through private, rather than governmental, means. Excessive reliance on government violates the essential principle of our free enterprise system."

Business and industry are recognizing their obligations in maintaining America's health programs. But it is the physicians of America who must give more generously—as they give of their time and counsel in the tradition of Hippocrates—to train tomorrow's physicians.

Gifts to educational institutions are encouraged by both federal and state governments. In 1954 Congress increased such maximum allowable tax deductions from a previous 20 per cent to 30 per cent of adjusted gross income. The purpose of this increase was to provide additional funds to educational institutions in view of their rising costs and the relatively low rate of return received on endowment funds.

What are some of the ways by which physicians or their patients can accomplish the greatest good for the support of our nation's medical schools and at the same time realize maximum tax reductions themselves?

Briefly, here are a few of the many methods that have come to my attention during the past year that may be of most interest:

CASH GIFTS

The simplest way for you, as a physician, to make a gift to a medical school or a foundation is by a cash gift. However, you should be careful in making your charitable contributions to stay within 30 per cent of your adjusted gross income.

To illustrate, suppose you are unmarried and have a taxable income of $25,000 (after all deductions except the deduction for charitable contributions and before the personal exemption). You wish to make a gift of $7,500 to a college for its medical school. Ordinarily without the charitable deduction, you would pay a federal income tax of $9,796 on your earnings. With the gift of $7,500 you reduce the tax to $5,650. Therefore, the actual net cost of the $7,500 gift is $3,354.

Or let us suppose you are a married taxpayer filing a joint return with itemized deductions (other than educational, charitable and religious) of 10 per cent of adjusted gross income, and have an adjusted gross income of $75,000. Almost two-thirds of the cost of the maximum deductible gift of $22,500 to a medical school is borne by the Federal Government! The net cost of the $22,500 gift to you is only $8,733. Of course, because of graduated income tax rates, the savings are less for those of smaller income. However, if our hypothetical taxpayer has an adjusted gross income of $50,000, in this situation, the Treasury Department would in effect pay for more than half of the maximum deductible gift of $15,000. The net cost thereof to the donor would be but $7,110. And if we assume an adjusted gross income of $25,000 under otherwise similar circumstances, the maximum gift of $7,500 would actually cost the donor just over $5,000.

SHORT TERM TRUSTS

The short term trust is a device that has proved to be especially advantageous for physicians. Since the inclusion of this statutory exemption in the tax revision of 1954, many physicians have already established short-term educational trusts. Let me explain how this technique is used.

Let us imagine that you are a physician in your fifties in a relatively high income tax bracket at present, but foresee retirement or a later period in which your income will be lower. The use of the short-term educational trust is ideally suited for a person in such circumstances.

With the use of this method, you irrevocably convey assets in trust for a period of at least two years, but for a longer term if you wish, with instructions to pay the income to a particular university for its medical school, and at the end of the prescribed time to return the principal to yourself or your estate.

The advantage of such a trust is that for the years of the trust its income is excluded from your income but you have not parted with the principal permanently. Therefore, top-bracket income of small net worth is temporarily released; at the same time, the underlying assets are preserved for your or your family's later use.

The following situation will clarify this principle: Let us say you are a single person with a net taxable income of $75,000 and tax liability of $46,170. You establish a trust to exist for three years with property having an annual income of $10,000. For each year of your gift your income is reduced by $10,000 and your tax liability is lessened by $7,950. Thus, at the end of three years you have made a $30,000 gift at an actual cost to you of $6,150.

APPRECIATED PROPERTY

The savings that may be gained by giving appreciated property are great. If you have property (other than inventoriable items or assets held for ordinary business sale) which has increased in value, it is much to your advantage to make a gift of the property itself rather than to sell it and then to donate the proceeds. By giving the property, you can deduct its full present value, subject to the 20 per cent or 30 per cent limitation rules. However, you are not liable for any capital gains tax.

This can be made clearer by considering an example. Let us suppose you have a net taxable income of $25,000 (after all deductions except the deduction for charitable contributions and before the personal exemption) and wish to give securities at present worth $7,500 that you obtained for $2,500 more than six months before. If you sell the stock, you would realize a long-term capital gain of $5,000 on which there would be a $1,250 capital gains tax. Thus, you have an actual net value in the securities of $7,500 less $1,250 or $6,250. If you were to give the $6,250 to a college for its medical school, your income would be reduced by approximately $3,516. Therefore, the school receives a $6,250 gift at an actual cost to you of slightly more than $2,730. However, if you give the stock to the medical school, you do not pay the capital gains tax and can deduct the full $7,500 as a charitable deduction. This deduction cuts your tax by $4,146. That amount plus the avoidance of the $1,250 capital gains tax reduces the actual cost of the gift of $7,500 to less than $2,105. And, remember, the medical school is benefited by the full $7,500.

In cases where the physician is in a higher tax bracket this technique of giving appreciated property to a medical school may be more advantageous to him in a financial sense than selling the same property and keeping the proceeds. To illustrate, let us assume that a physician, who is single, has an adjusted gross income of $150,000 and owns securities with a current market value of $50,000 which he acquired more than six months ago for $10,000. If he gives the stock to a medical school, he will ultimately end up with $4,500 more than he would have been able to retain had he sold it and kept the proceeds.

Conversely, if the property has depreciated in value and is of a kind on the sale of which one may legitimately claim a tax loss, it is more advantageous to sell it and then turn the proceeds over to the foundation or medical school in order to gain the maximum tax savings.

TESTAMENTARY GIFTS

Ordinarily it is more advantageous for tax purposes for a donor to make a living gift than to make a gift by will. Oliver Wendell Holmes humorously expressed such a thought when he wrote:

> "Learn to give
> Money to colleges while you live.
> Don't be silly and think you'll try
> To bother the colleges, when you die,
> With codicil this, and codicil that,
> That knowledge may starve while the Law grows fat;
> For never was pitcher that wouldn't spill,
> And there's always a flaw in a donkey's will."

However, death tax advantages are substantial for a physician who includes medical schools or foundations in his will.

The estate tax deduction for charitable gifts reduces the actual cost of donations. This amount comes off the top of the estate, eliminating it from the impact of the highest rate of taxation.

To illustrate, let us assume that upon your death you have a taxable estate of $200,000 and have provided for a $25,000 bequest to a medical school. The federal estate tax would be reduced by $7,500. This means that the actual cost to your estate of the $25,000 gift is $17,500. Naturally the tax savings are greater in larger estates.

Of course, the types of gifts that I have mentioned are just a very few of the many techniques that might be used. And there are innumerable possible variations of each, depending on your individual wishes and circumstances. Perhaps a testamentary trust might be best for you or a gift by life insurance, or maybe you should consider giving by will certain real property that would be difficult to sell for appraised value, in order to eliminate it from your taxable estate. Your tax adviser can assist you in making the proper choice.

The tax savings referred to above are savings in federal taxes only. Contributions to medical schools are also deductible for California income tax purposes subject to prescribed statutory limitations and likewise are deductible under the California Inheritance Tax Law.

Here is one suggestion that I cannot emphasize too strongly: *When investigating the form which the benefaction should take, or in drafting the proper instrument of conveyance, by all means consult an attorney, a tax expert or an officer of the medical school or foundation of your choice.*

How much are American physicians now giving toward medical education? In 1956 a total of more than $3,000,000 was given in two ways: (1) approximately $2,000,000 was given by physicians directly to the nation's 82 medical schools, and (2) another $1,000,000 was contributed through the American Medical Education Foundation. Until last year, the A.M.E.F. channeled its funds through the National Fund for Medical Education (a business and industry fund-raising organization). In the future, however, the A.M.E.F. will make its own distribution of funds.

It has been variously estimated that the additional income needed annually by our medical schools is from $10,000,000 to $40,000,000.

Your individual contribution will help medical education pay its own way and yield rich dividends in better health and new victories over disease. All Americans have a stake in the future of medical education—but you, as a physician, have the greatest stake of all.

128 Administration Building, University of California, Berkeley 4.

Medical Professional Liability

The following special report by the law department of the American Medical Association on medical professional liability was approved by the Board of Trustees and transmitted to the A.M.A. House of Delegates at the 1957 annual meeting for its information. The board also voted that the recommendations made by the law department be approved and implemented.

The report was referred to Reference Committee on Insurance and Medical Service, which approved the recommendations; and the Reference Committee's report then was adopted by the House.

SPECIAL REPORT OF THE LAW DEPARTMENT

Introduction

At its meeting in December, 1954, the Board of Trustees requested the law department to review previous actions of the American Medical Association with respect to medical professional liability and to plan and initiate any necessary additional studies. This action by the board was taken in response to a number of resolutions presented to the House of Delegates by state medical societies requesting advice and assistance in this field. After consultation with the staff of the Council on Medical Service and the Committee on Professional Liability of the Committee on Medicolegal Problems, it was determined that further investigation and study was necessary and desirable.

It was recognized at the outset that two approaches to the study were available. We could say as little as possible about the subject for fear of stimulating additional claims or we could plan a program designed to educate the members of the profession concerning accident and claims prevention and alert them to the pitfalls and occupational hazards in the practice of medicine. It was and is our belief that only by facing up to the facts of the past and present concerning medical professional liability can the profession intelligently plan ways and means to cope with this problem in the future.

Since the initiation of its study, the law department has submitted three progress reports to the Board of Trustees: one in May, 1955, one in November, 1955, and the most recent in May, 1956. This report is intended to summarize the most significant results of our study up to the present time.

For approximately two years, facts, figures, and opinions have been collected. This material has been reviewed, studied, and analyzed. It is hoped that the results will add to existing knowledge in the field and will provide the basis for workable and effective professional liability claims prevention programs.

Because of some of the conclusions and recommendations contained in this report it has been identified as "confidential." It is a matter for the board's discretion as to whether all or parts of it should be released.

Scope of the Study

The following projects have been completed and the results have been published in the *Journal.*

(a) *State Regulations.* A questionnaire was prepared jointly with the Council on Medical Service and sent to each state insurance commissioner for the purpose of obtaining authoritative information regarding the regulation and control of professional liability insurance rates.

(b) *Survey of State Medical Societies.* A questionnaire was sent to all of the state medical societies and the medical societies of the District of Columbia, Hawaii, and Alaska to obtain the opinion of society officials concerning such subjects as: The average amount of coverage and the availability of professional liability insurance, the most prevalent problems in the field, and the status of claims prevention programs.

(c) *State Statutes of Limitation.* A detailed study has been made of the statutes of limitation of each state relating to medical professional liability.

(d) *Analysis of Reported Cases.* A review has been made of medical professional liability court cases on which official reports have been published from 1935 through 1955. The analysis of these reported cases indicates the geographic areas in which professional liability cases occur most frequently, the types of medical procedures involved, the circumstances which caused the suits to be filed, and their disposition.

(e) *Government Physicians.* An analysis has been made of professional liability claims involving physicians in all branches of federal government service.

(f) *Survey of National Medical Societies.* A questionnaire inquiring as to available group insurance programs or other similar arrangements was sent to and completed by 13 national medical societies.

(g) *Opinion Survey of Physicians.* A questionnaire was sent to approximately 7,500 members of the American Medical Association, representing a random sample of about 5 per cent of the membership. Of these questionnaires 71.2 per cent or 5,341 were completed and returned. Opinions were requested on various aspects of medical professional liability and inquiry was made as to whether a professional liability claim has ever been brought against them. A second questionnaire requesting detailed information was sent to those physicians who indicated that a professional liability claim or suit had been brought against them.

(h) *Special Articles.* The preparation and publication of a series of articles on various aspects of medical professional liability, entitled: The History of Professional Liability Suits in the United States; Expressing Opinions as to Former Treatments; Put It in Writing, Doctor; Medicolegal Hazards of Anesthesia; Hazardous Fields of Medicine in Relation to Professional Liability; Res Ipsa Loquitur—Liability Without Fault; Rule of Respondeat Superior; Professional Liability Insurance: Amount of Coverage; and Professional Liability Claims Prevention.

The above categories of inquiry form the basis for this report. In conducting this study our hypothesis has been that most professional liability claims can be prevented if knowledge of the causes of past claims is put to intelligent use. The information we have obtained, thus far, confirms this belief. Although we have not exhausted all possible sources of information we have learned a great deal about professional liability and the causes of claims.

The Law of Professional Liability

Although this report is primarily concerned with the legal duty of the physician to avoid injury to his patient we also of necessity have given some consideration to the physician's ethical, moral, and social responsibilities in the practice of medicine. Generally, the fulfillment of these responsibilities will serve to satisfy the obligations which the law imposes upon the physician.

It is a general rule of law that a physician must possess that degree of medical knowledge and skill possessed by other physicians in his or a similar community engaged in a similar type of practice. He must also use his best judgment and reasonable and ordinary care in applying his knowledge and skill to the treatment of patients. The specialist or the man who holds himself out to the public as a specialist is required to possess and exercise that degree of care and skill commonly possessed by those engaged in the same specialty, in the same or similar community.

The Nature of the Problem

Patients who have sustained an unsatisfactory result and are aware that they have not received the *best* possible medical care are potential claimants. Where there is a poor medical result, merely fulfilling legal standards of care is sometimes not enough to prevent a claim. This usually is the case when the patient believes that the physician is not sufficiently sympathetic or if he considers the physician's fees to be excessive.

Professional liability cannot therefore be properly regarded as a legal problem exclusively. It is also a medical problem and one which in our opinion requires the same intensive study that the profession has devoted to the conquering of disease. The legal problems associated with medical professional liability can be dealt with adequately only if medicine will provide the type of emphasis to accident prevention and the utilization of already acquired knowledge as it does to scientific advancement. When effective means are discovered for reducing or minimizing medical professional liability problems it will be physicians who will lead the way by devising techniques that will minimize medical mistakes and patient dissatisfactions.

Availability of Professional Liability Insurance and Amount of Coverage

Without exception, all of the organizational representatives who replied to our medical society questionnaire indicated that medical professional liability insurance was available to the physicians in their state. Furthermore, all of them, except two, stated that it is not difficult to obtain. One indicated that physicians in certain specialties had difficulty, and another said that difficulties had been encountered by physicians who had a previous claim or suit brought against them.

In the survey of individual physicians, 92.3 per cent said that they carried professional liability insurance and 92.6 per cent said that the insurance was not difficult to obtain. Of those answering the questionnaire 56.4 per cent expressed the opinion that the cost of professional liability insurance is reasonable.

The limits of professional liability coverage appears to vary widely even within a state and within the different types of practice. According to the information supplied by medical society representatives the average (median) coverage across the country for general practitioners is $25,000 for one claim and $75,000 for all claims during the year; for surgeons and other specialists $100,000 and $300,000. There are at least 45 carriers writing medical professional liability insurance in the United States.

Effect of Professional Liability Claims on Physician's Reputation

A substantial majority of medical society representatives reported that in their opinion professional liability claims have little or no effect on the reputation and on the practice of the physician involved. A few medical society spokesmen explained that in the smaller communities in their area the effects of such claims and suits are more pronounced than in larger communities. Other responses indicated that the effects were greater when newspaper publicity was given to the case. A few responses explained that the effects were more adverse if the physician had previously been the subject of a professional liability claim or suit.

Incidence of Professional Liability Claims

Many medical society executives and individual physicians have, on numerous occasions in the past, expressed concern over what they describe as an "alarming" increase in the frequency of professional liability claims. It is unfortunate that insurance company records are either unavailable or inaccessible to determine the actual trend. Realizing that the individual physician may not be in a position to supply authoritative information as to whether there is, in fact, a rapid rise in the frequency of claims in his community, in the absence of more accurate data, we nevertheless feel that their opinions deserve consideration. According to our survey of physicians, only 29.7 per cent of the respondents to the question on this point were of the opinion that there has been an increase during the past five years. Of the respondents, 39.7 per cent felt that the incidence of claims had not increased. The remainder thought that claims had decreased or else they had no opinion.

In California, Louisiana, New York, Rhode Island, Utah, the District of Columbia, and Hawaii, there was a clear-cut expression of opinion that professional liability claims have increased in frequency during the past five years. For example, 59.7 per cent of the California physicians said that in their opinion there has been an increase.

Validity of Claims

Our study of reported court decisions and the survey of physicians who stated that a claim had been brought against them indicates that approximately 50 per cent of the claims and suits could not be sustained legally. There were, however, a considerable number of instances reported in which a claim was brought against a qualified physician which involved either actual negligence in treatment or a substantial basis on which a patient could reasonably believe he suffered from the negligence of a physician. In a few instances it appeared that the claims were either fraudulent or so wholly lacking in foundation as to compel the inference that the patient was acting in bad faith.

Many physicians consider the problems of professional liability as a matter of academic interest. The fact is that professional liability claims are *not* limited to a small group of "malpractice prone" doctors. Among the physicians who indicated that they had experienced claims, 86.5 per cent incurred only one claim in their entire professional practice. Only 10.5 per cent of the physicians who reported claims had two claims in their entire professional practice; 1.9 per cent, three claims; and 1.1 per cent, four claims. Our figures indicate that professional liability is the problem of the many, not the few.

In a number of cases which were resolved in favor of the physician because of technical legal grounds it is possible that the verdict would have been against the defendant had the case been decided on its medical merits. On the other hand, there was a significant number of cases involving the doctrine of "res ipsa loquitur" (the thing speaks for itself) wherein the courts assumed negligence solely because there was no medical explanation for an unsatisfactory result.

Professional Liability Claims Review Committees

The executives of thirty-one state medical societies indicated that a claims review program has been established in their state either on a state or county level. The usual procedure followed by these committees is this: When a claim is reported, the physician involved is called in to meet with the committee. The committee attempts to determine whether the claim is legitimate and whether there is evidence of actual professional liability. If the physician has been careless or unethical or has undertaken procedures beyond his competence, he and the insurance carrier are advised to settle the case. If the negligence of the physician is not apparent every legitimate effort is made to encourage or assist in the defense of the case.

We feel that these committees can render a real service to the public and the profession by indirectly improving the quality of patient care, and in the discouragement of invalid or nuisance claims. Such committees should not attempt to usurp the function of courts in the adjudication of claims nor interfere in the normal relationship between the physician and his insurance carrier.

Professional Liability Claims Prevention Programs

Although only 21 state medical societies reported that they have a claims prevention program, 73.9 per cent of the physicians polled believe that such programs perform a valuable function. Of the physician respondents, 23.7 per cent said that a claims prevention program is now offered by their *county* medical society. Of this number, 76.1 per cent rated their county program as either adequate or excellent.

It appears from these figures and from the fact that 76.3 per cent of the physicians reported the absence of claims prevention programs in their county medical society that there is a nationwide need and a desire on the part of the medical profession to stimulate the initiation of such programs.

If properly planned and implemented such programs have a twofold objective: The prevention of medical accidents which lead to claims and the prevention of unwarranted claims—in brief, the improvement of medical service.

Claims Statistics

The following are some of the significant statistics concerning professional liability claims as shown by our survey of physicians:

(a) 14.1 per cent or approximately 1 out of every 7 physicians responding to our questionnaire experienced professional liability claims during his professional medical career.

(b) 53.7 per cent of those who have had *claims* said that the claims were brought against them since 1950.

(c) 43 per cent said that the *alleged act* of malpractice occurred since 1950.

(d) Thirty-four years was the approximate median age of patient bringing the claim.

(e) 55 per cent of the claimants were female, but 10 states had more male than female claimants, and 6 states had about the same number of female and male claimants.

(f) 72.5 per cent of the physician respondents who had claims reported that they had personally performed the treatment or act of alleged malpractice.

(g) 67.2 per cent of the incidents of alleged malpractice occurred in hospitals, 23.9 per cent in the physician's office, 6.3 per cent in the home of patient, and the remaining 2.6 per cent occurred elsewhere in such places as factories, or the place of the incident was not stated by the respondent.

(h) 30.9 per cent of the claims involved surgery, 20.0 per cent medicine, 19.7 per cent orthopedics, 12.5 per cent obstetrics and gynecology, 6.2 per cent neuropsychiatry, 5.6 per cent anesthesiology, and the remaining 1.1 per cent were either too small to tabulate separately or were not stated by the respondent.

(i) The physicians who had 93.2 per cent of the claims reported that they had professional liability insurance at the time of the alleged incident.

(j) 28.9 per cent of the physicians against whom claims were brought are certified by an American specialty board.

(k) 50.4 per cent of the physicians against whom claims were brought stated that they were full-time specialists.

(l) Physicians experiencing claims said that they were in practice, on the average (median), about 13 years before they had a claim.

Conclusions

After studying the problems of medical professional liability for the past two years our basic conclusion is that most claims are preventable and not inevitable. We feel that our analysis of professional liability cases and claims and the surveys we have conducted warrant the following specific conclusions:

(a) An element which is present in all professional liability claims is dissatisfaction arising out of the physician-patient relations. Many of the cases which actually involved substandard medical treatment would probably not have matured into claims had it not been for some other cause of friction between the patient and the physician.

(b) Professional liability, although varying in severity in different localities, is a national problem which transcends local boundaries. To be effective, a professional liability claims prevention program requires leadership at the national as well as the state and local levels.

(c) The objective of the medical profession is not the prevention of professional liability claims as such, but the prevention of avoidable errors and omissions that result in injury to the patient and stimulate litigation, and the discouragement of unfounded claims. To implement this objective there is need for (1) an intensive educational program which emphasizes the nonmedical as well as the medical causes for professional liability claim, and (2) the utilization of the self-disciplining resources of the medical profession in the prevention of medical accidents within and outside the hospital.

(d) Regardless of the safety measures that are taken, the ever-increasing complexities of modern medicine create possibilities for human errors and omission even among the most qualified and experienced practitioners.

(e) In the interest of the public as well as the profession, physicians who have demonstrated that they are careless, incompetent or unethical in the treatment of patients should be dealt with effectively through medical society, state licensure and hospital disciplines to prevent the recurrence of patient injury.

(f) An effective educational and accident prevention program should include not only physicians, but physicians' employees and the hospital personnel for whose acts the physician may be responsible.

(g) An effective prevention program should include periodic examinations of equipment to avoid mechanical failures, and the abandonment of obsolete and defective devices.

Recommendations

(a) Considering that more than 2 out of 3 of the incidents resulting in professional liability claims occur in hospitals, patient tort liability is now a matter of common interest and mutual concern between the medical profession and hospitals. It is suggested that the Board of Trustees consider the advisability of entering into discussions with representatives of the American Hospital Association with the objective of formulating and implementing an effective in-hospital safety and accident prevention program.

(b) We recommend that this report be called to the attention of the American Medical Association's representative on the Joint Commission on the Accreditation of Hospitals for their consideration as to the feasibility of encouraging that organization's interest in the subject herein presented.

(c) That state and county medical societies be urged by the Board of Trustees and the House of Delegates to create or, if in existence, implement more effectively, Claims Prevention Programs. To facilitate the efforts of the state societies in this project the law department is forwarding to each state executive secretary all statistics pertaining to his state which have been collected during the course of the current survey.

(d) That state and county medical societies be encouraged to show the film on Medical Professional Liability prevention and to plan informational and educational programs on this subject at state and county meetings.

(e) That the Board of Trustees authorize the printing and distribution of the compilation of medicolegal forms and explanatory text material which has been developed by the law department.

(f) That the law department be authorized to conduct the second phase of the professional liability survey consisting of an opinion survey of selected attorneys and the judiciary, an analysis of available information concerning insurance experience and a survey of comparable fields of negligence actions.

For Your Patients—

Certainly, let's talk about fees...

In this day and age I think we all are faced with many similar financial problems. Though our incomes may be derived from different sources, our expenditures, for the most part, consist of food, clothing, shelter and other expenses including medical care.

As your personal physician, you realize my income is solely from my fees; fees which I believe to be entirely reasonable. However, should you ever have any financial worries, I am most sincere when I say that *I invite you to discuss frankly with me any questions regarding my services or my fees. The best medical care is based on a friendly, mutual understanding between doctor and patient.*

You've probably noticed that I have a plaque in my office which carries this identical message *to all my patients.* I mean it—

Sincerely,

______________________, M.D.

MESSAGE NO 3. Attractive, postcard-size leaflets, you to fill in signature. Available in any quantity, at no charge as another service to CMA members. Please order by Message Number from CMA, PR Department, 450 Sutter, San Francisco. (If you do not have the plaque mentioned in copy, let us know and it will be mailed to you.)

THE PHYSICIAN'S *Bookshelf*

WILLIAM HARVEY—His Life and Times: His Discoveries: His Methods—Louis Chauvois. Philosophical Library, New York, 1957. 271 pages, $7.50.

In this year of Harvey celebration it is of interest to find a new book on the discoverer of the circulation by a Frenchman—and a very fine book it is! Chauvois realizes that medical history can only be written intelligently against the historical background of the time, and the first part of the book is really a sketch of the Jacobean, Commonwealth and Restoration periods interwoven with the life of Harvey vividly depicted. An account of the details of Harvey's discoveries occupies the later part of the work. The author is obviously a great admirer of his subject and one wonders at times whether he does not ascribe to Harvey's character a degree of perfection perhaps a little overdone. Aubrey, who is superficial and gossipy but nonetheless fairly reliable, says of him for example: "He understood Greek and Latin pretty well, but was no Critique, and he wrote very bad Latin. The Circuitis Sanguinis was, as I take it, done into Latin by Sir George Ent . . . All his profession would allow him to be an excellent Anatomist, but I never heard of any that advanced his Therapeutic way. I knew several practicers in London that would not have given 3 d. for one of his Bills; and that a man could hardly tell by one of his Bills what he did aime at."

At any rate Chauvois has done a splendid job and the book—an example of fine biographical style—gives us a vivid impression of Harvey and his times and at the end is put down with regret.

A. L. Bloomfield, M.D.

* * *

SCIENCE LOOKS AT SMOKING—A New Inquiry into the Effects of Smoking on Your Health—Eric Northrup—Introduction by Dr. Harry S. N. Greene, Chairman Department of Pathology, Yale University. Coward-McCann, Inc., 210 Madison Avenue, New York 16, N. Y., 1957. 190 pages, $3.00.

The relationship between chronic cigarette smoking and lung cancer in males continues to be a topic discussed more with emotion than with scientific detachment. While the author makes a valiant attempt to remain detached, one can detect emotional overtones, especially in quotations from the entertaining introduction written by the normally quite detached Professor Greene, chairman of the department of pathology at Yale University.

After this not inconsiderable introduction, in which Doctor Greene emphasizes the well-known fact that he has been able to produce experimental carcinoma in animals with many standard carcinogens such as coal tar and dibenzanthracene, but never with tobacco smoke, there are a series of nine chapters. These range from the wisdom or otherwise of smoking, facts pertinent to lung cancer, coronary disease, animal research and "The Real Work To Be Done."

The author points out that there is no evidence that oral cancer has shown an increase parallel to the growing use of tobacco in the last 25 years, and that there are too many paradoxes in the prevalence of lung cancer in different United States cities, and in different countries throughout the world, to permit a simple linkage with cigarette smoking. For example, in the ten large United States cities examined some years ago by the U. S. Public Health service, the prevalence of primary bronchial cancer in males varied by a factor of over 500 per cent. At time of writing this review, the prevalence of primary bronchial cancer in British males is twice that of United States males, and yet the amount of cigarette smoking per capita is considerably less in Great Britain.

The fact that primary bronchial cancer has not increased proportionately in females, despite much cigarette smoking in the fair sex in recent years, is also alluded to. The striking experience with newcomers to New Zealand is given due mention.

It is mentioned that the death rate in the United States today is about 26,000 per annum (not the 400,000 adumbrated by Doctor Ochsner in his book a couple of years ago).

The paradox in the coronary mortality matter is also discussed. The British investigators find a small increase in coronary mortality amongst heavy smokers, while the American investigators find a large increase. The number of authenticated deaths in either series of cases is of course relatively small.

The author emphasizes the importance of continued research into the carcinogenic factor in cigarette tobacco, if any, and the need for its elimination. He quotes Russ, the British cancer researcher, who observed that of the three common smoking habits throughout the world (tobacco, opium and hemp), there is little doubt that tobacco is the least evil. Used in moderation, it provides solace and some modicum of tranquility.

* * *

PERIPHERAL CIRCULATION IN HEALTH AND DISEASE—Walter Redisch, M.D., F.A.C.P., Associate Professor of Clinical Medicine, New York University; and Francisco F. Tangco, M.D., B.S., Assistant Professor of Medicine, University of the Philippines Medical School, Manila; with a special section by R. L. deC. H. Saunders, M.D., F.R.S.E., Professor and Head of the Department of Anatomy, Dalhousie University Medical School, Halifax, Nova Scotia. Grune & Stratton, New York, 1957. 154 pages, $7.75.

This is an interesting monograph, but is definitely for the specialist in peripheral vascular disease. It is aimed at a physiological understanding of peripheral vascular disease. The first part of the book deals with a detailed description of the anatomy and physiology of the peripheral vascular bed. Pathologic alterations are then discussed. The physiologic adjustments in flow are elaborated in detail and mechanisms of reactivity of the peripheral vessels are detailed. The section on therapy is brief and not too good. This book is not for the clinician, but is for the research worker in the field of peripheral vascular disease.

Victor Richards, M.D.

SYNOPSIS OF OBSTETRICS—Fifth Edition—Revised— Jennings C. Litzenberg, B.Sc., M.D., F.A.C.S., Late Professor Emeritus of Obstetrics and Gynecology, University of Minneapolis Medical School. Revised by Chas. E. McLennan, M.D., Professor of Obstetrics and Gynecology, Stanford School of Medicine, San Francisco. The C. V. Mosby Company, St. Louis, 1957. 403 pages, 163 illustrations, including 4 in color, $6.00.

This compact volume was designed chiefly for medical students but has considerable usefulness for any physician desiring a brief review of clinical obstetrics. In this new fifth edition the sections on maternal and fetal physiology have been rewritten almost completely, and major revisions have been made in many other portions of the book. In fact, scarcely a page has escaped at least minor editing. Quite a number of the outmoded illustrations which appeared in all previous editions have been deleted and replaced by more appropriate figures. The entire text has been reset in a new type face which is infinitely more attractive than that previously used in most Mosby publications.

Because of the effort to compress extensive factual information as well as controversial opinions into a volume which will not overwhelm the undergraduate student, the style of this book is necessarily dogmatic in many places. But the views expressed are generally conservative and are not seriously at variance with those in the major American textbooks, particularly the latest edition of "Williams Obstetrics" (Eastman). Your reviewer recommends the synopsis for the purpose for which it is intended.

* * *

EXPERIMENTAL PSYCHOLOGY AND OTHER ESSAYS—I. P. Pavlov. Philosophical Library, 15 East 40th St., New York 16, N. Y., 1957. 653 pages, $7.50.

This is a valuable book in that it makes available in English some of the basic thinking and writing of Ivan P. Pavlov who is widely known for his work on the conditioned reflex. The book is a selection of his writings ranging from an autobiographical note to extended treatment of Pavlov's work on digestion, blood circulation, higher nervous activity, sleep and related phenomena. As in all such abstractions, there is an unevenness in the space devoted to various topics, but there is grist in the mill for the internist, physiologist, biologist, psychologist and others. A summary evaluation is provided by Kh. S. Koshtoyants—the difficulty here is that it is too brief and one wishes that more interpretive material had been provided. Strangely enough, no editorial credits are given and it is impossible to tell which of the material has been translated for the first time.

Pavlov's contributions may be briefly summarized as follows:

1. He made basic discoveries of the physiological mechanisms of digestion and blood circulation and related them to nervous activity of the organism based upon stimulation coming from the environment.

2. He developed surgical techniques which minimized the damage to the organism under study and allowed observation under more naturalistic conditions than had heretofore been possible.

3. He was an objectivist and gave great impetus to the experimental method in medicine while at the same time seeking clinical correlates of experimental findings.

4. He vitalized the almost dormant Cartesian concept of the reflex and demonstrated its adaptive qualities in nature. In this way he opened a new field of investigation—the stimulus and learning value of the environment and its central correlation in the brain of the animal.

5. His consistent philosophical position was that all behaviour could be explained on the basis of the soma. This led to a counterreaction and to the eventual understanding of the part emotion plays in such behaviour.

Possibly the most valuable portion of this work is the final section where stenographic notes of Wednesday "seminars" are reported. Here the spirit of Pavlov's scientific outlook is best found. He was highly impatient with Sherrington, Kohler, Claparede and others when they departed in any way from what he considered objectivity. During his lifetime he could see no basis for admitting that anything psychical or emotional went on inside the organism.

Pavlov has made exemplary contributions to the psychophysiology of the learning process, gastrointestinal function, vasomotor mechanisms, the roles of excitation and inhibition in the nervous system, and in several other areas. His dogmatism, however, probably retarded the recognition of individual differences, and thus the function of the personality for four or five decades. It remains also to be proved that conditioned reflexes can become unconditioned (i.e., inborn) reflexes through heredity as Pavlov believed.

The volume contains some new and interesting photographs of Pavlov and his home.

Arthur Burton, Ph.D.

* * *

THE CIBA COLLECTION OF MEDICAL ILLUSTRATIONS—Volume 3—The Digestive System; Part III—Liver, Biliary Tract and Pancreas—Prepared by Frank H. Netter, M.D., and Edited by Ernst Oppenheimer, M.D. CIBA Pharmaceutical Products, Inc., Summit, New Jersey, 1957. 165 pages, 133 full-color plates with descriptive text, $10.50.

No one who has received the CIBA literature has failed to admire the exquisite colored drawings of Frank Netter, M.D. This book is a CIBA Collection of Medical Illustrations on the Digestive System, and is devoted to the Liver, Biliary Tract, and Pancreas.

It is magnificently illustrated in colored drawings of striking clarity and brilliant exposition. Complementing these beautiful illustrations is the text which has been carefully written for clarity of expression and breadth of information. The result is an unusual monograph on diseases of the liver, biliary tract, and pancreas. Embryology, anatomy, physiology, clinical disturbances, pathological physiology, and therapy pass in serial review, and each aspect of the subject is superbly treated.

There is no new information in this book. But, the manner of presentation is such that vast stores of knowledge are quickly and concisely presented in a well organized written and illustrated manner. It is an unusual work and one which can be recommended highly to any physician interested in these disorders. The cost is surprisingly low, considering the quality of the book.

Collaborators are used as each discipline brings its knowledge to bear on the Liver, Biliary Tract, and Pancreas. The collaborators include biochemists, physiologists, pathologists, clinicians, but each is complemented by the unparalleled illustrations of Frank Netter.

Victor Richards, M.D.

* * *

ATLAS OF NEUROPATHOLOGY—Nathan Malamud, M.D., Associate Clinical Professor of Psychiatry, and Neuropathology, University of California, Neuropathologist, Langley Porter Clinic, San Francisco. University of California Press, Berkeley 4, Calif., 1957. 468 pages, $20.00.

This is a beautifully illustrated book which follows the general plan of a case presentation on one side of the double page and photomicrographs of suitably stained sections illustrating the pathological changes on the other. Reviewers have been critical of the rather sketchy presentation of the clinical picture in the text; this criticism seems unfounded since the work was in no way intended to be a textbook of neurology or even of neuropathology. Supplemented by such a text, the book should be very helpful in the study of neuropathology, and can be recommended highly for this purpose.

Henry Newman, M.D.

PRACTITIONER'S CONFERENCES—Held at The New York Hospital-Cornell Medical Center—Volume 6—Edited by Claude E. Forkner, M.D., F.A.C.P., Professor of Clinical Medicine, Cornell University Medical College. Appleton-Century-Crofts, Inc., New York, 1957. 378 pages, $6.75.

This is the 6th volume of an eminently successful series of general conferences on a wide variety of subjects. The current volume is an excellent one and includes among its diverse subjects, five chapters on tumors and a very provocative one on "Should patients be told the truth about serious illness?" The presentations are clear, authoritative, have a pertinent bibliography at the end of each conference as well as a summary by Dr. Forkner of the major points brought up in the discussion.

The practical aspects as well as some of the technical concepts are summarized and often unpublished material is presented.

This volume is one of the best of a series and general physicians will profit from reading it. The conferences are specifically oriented toward physicians who are not members of a University Medical Center, but such a person will profit considerably from reading chapters dealing with diseases not in his own field.

* * *

THE EARLY DETECTION AND PREVENTION OF DISEASE—Edited by John P. Hubbard, M.D., George S. Pepper, Professor of Public Health and Preventive Medicine, University of Pennsylvania School of Medicine. The Blakiston Division, McGraw-Hill Book Company, New York, 1957. 350 pages, $7.50.

With some reluctance and hesitation, the American College of Physicians was led to devote one of its regular postgraduate courses to "The Early Detection and Prevention of Disease." It turned out to be popular and widely appreciated. This book is a selection from the informal discussions therein presented.

Dr. Hubbard gives particular credit for planning the course to the inspiration of Dr. Norbert J. Roberts, whose chapter on periodic health-maintenance examinations is an outstanding résumé of the methods and results of this procedure, for which there is increasing demand. He documents the discovery of unsuspected disease among a quarter to a third of those examined, and of untreated (though previously known) disease in an equal proportion. Physical and laboratory examinations are more fruitful than the history in this work. He emphasizes the necessity of adequate discussion of the findings with the patient and follow-up to see that recommendations are given attention. His discussion of the relative efficiencies of various laboratory procedures and the criteria for selecting those best applied in differing circumstances is highly valuable.

Other outstanding contributions from Paul White on cardiovascular disease, Thomas Almy on gastrointestinal disease, Henry Bockus on malignant neoplasms, Katharine Boucot on lung cancer, and Hubbard on rheumatic fever, are of nearly equal thoroughness and persuasiveness, and make the book well worth having. Frederick Liebolt gives a straightforward description of the technique of examining the musculoskeletal system, which, if not inspiring, is highly practical. Those who learn to follow his methods will do better work with little increased effort. Some twenty others, mostly Philadelphians, cover a wide variety of topics.

In an opening chapter, Lemuel McGee says that much of the current practice of internists is in the field of preventive medicine, but suggests that both the quantity and quality can be greatly improved. He blames the lack of more effective application of preventive principles upon the unreadiness of the public to purchase such service and (quoting Vines) upon the divorcement of preventive from clinical medicine and its forced marriage to public health. While one may not agree with his reasons, the implied conclusion is acceptable: Clinicians should prepare themselves for the early detection of deviations from health and for instruction of their patients in dietary and other measures for health maintenance. This calls for thoroughness in examinations and skill in interpreting their findings and explaining appropriate action to be taken. This book is the best available explanation of how these things can be done. It expresses both the theory of disease prevention and practical methods by which it can be accomplished by practicing physicians.

Rodney R. Beard, M.D.

* * *

PROGRESS IN GYNECOLOGY—Volume III—Edited by Joe V. Meigs, M.D., Clinical Professor of Gynecology, Harvard Medical School; and Somers H. Sturgis, M.D., Clinical Professor of Gynecology, Harvard Medical School. Grune & Stratton, New York, 1957. 780 pages, $15.50.

The third volume of the Progress in Gynecology, edited by Meigs and Sturgis, recently has been presented to the medical profession by Grune and Stratton of New York and London. As in the two previous issues the subject matter has been grouped under ten headings, namely Growth and Physiology, Diagnostic Methods, Functional Disorders, Interrelationships of Endocrine Glands, Sterility and Reproduction, Infections, Benign Growths, Malignant Growths, Operative Techniques, and Pre and Postoperative Care. A total of fifty-five subjects is here discussed in adequate detail to serve as a reliable and quick reference for the busy practitioner. Not all of the material is new but it has been reevaluated in line with advancing knowledge and therefore is important. There has been added, however, considerable new material to complement subjects discussed in previous issues of the Progress. In order to avoid repetition the editors have selected an entirely new group of contributors, among them several renowned foreign gynecologists. Not every opinion expressed necessarily conforms with those held by others of equal experience which is refreshing and stimulating.

The fifty-five subjects range from such a relatively new subject as ovarian cortical stromal hyperplasia and its relation to estrogen production past the menopause to the techniques of urinary diversion into the intestinal tract in the presence of blocking carcinoma of the pelvic outlets. It would go too far to discuss the intervening subject matter but the reader will be well rewarded by perusing such problems as the applicability and techniques of the several forms of irradiation for pelvic cancer and the advantages and disadvantages of preoperative irradiation. Where the physics of irradiation are mentioned the average reader will find no difficulty in interpreting them into clinical values. Among the more controversial subjects the mechanism of pelvic pain, the so-called Stein-Leventhal syndrome and the psychosomatic disturbances manifesting themselves as pelvic dysfunctional disorders are discussed without prejudice or dogma which gives the reader ample chance to compare opinions and come to an independent conclusion.

As might be expected there is considerable discussion of the diagnosis and treatment of the earliest states of pelvic cancer. Also here, ample chance is found to compare opinions regarding methods of treatment. The same holds true of the study and correction of infertility. Endocrine disorders and their manifestations in the generative organs have received adequate attention although these chapters add little to our current knowledge. All in all, the third volume of the Progress in Gynecology is an excellent computation of advancing thought on matters gynecologic and can be highly recommended as interesting reading matter.

Grune and Stratton present the book to the profession attractively bound, printed on good paper in clear type and well illustrated.

Ludwig A. Emge, M.D.

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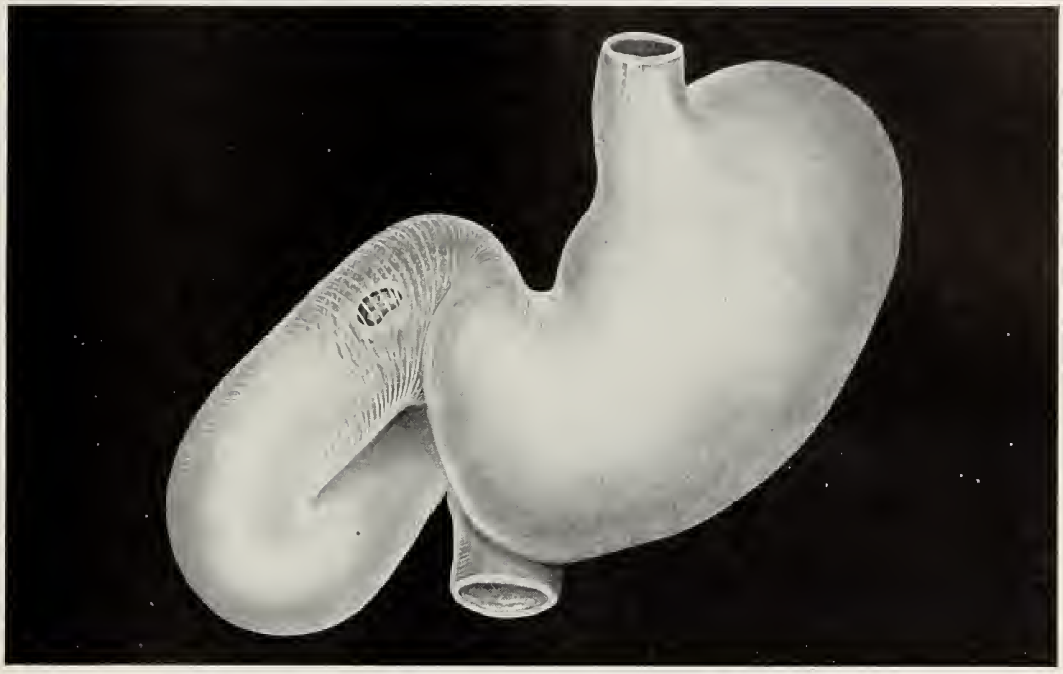

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*Lichstein, J.; Morehouse, M. G., and Osmon, K. L.: Pro-Banthīne in the Treatment of Peptic Ulcer. A Clinical Evaluation with Gastric Secretory, Motility and Gastroscopic Studies. Report of 60 Cases, Am. J. M. Sc. *232:*156 (Aug.) 1956.

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American Medical Association Committee Warns All Fevers Aren't Flu

The American Medical Association's special committee on influenza recently warned against attributing all flu-like symptoms to Asian influenza.

In its first comprehensive report to physicians on Asian influenza, the committee quoted an Army physician as saying, "All that fevers is not flu." When a disease is widespread, there is a tendency to attribute the symptoms of most patients to the new disease. Physicians particularly must be aware of this fact, the report said.

Only by isolating the causative virus from the throat swabs of ill patients can a definite diagnosis of Asian flu be made.

In the report in a recent issue of the *Journal of the American Medical Association*, the committee listed eight main conclusions about the disease and summarized the situation as it now stands. An accompanying editorial pointed out that "any change in the incidence of reported cases, or in the virulence of the virus, might warrant a completely new approach toward the disease."

As of now, the committee has reached these conclusions:

—The probability of an epidemic of Asian influenza this fall or winter is great.

—The United States population has no natural immunity to this type of influenza.

—The most satisfactory vaccine possible has been developed.

—The supply of this vaccine should soon be adequate to protect essential national services.

—The vaccine is safe, except in patients with known allergy to eggs.

—The course of the disease is moderate in most patients, and there have been very few deaths reported due to the disease.

—It is possible, but not probable, that the disease will increase in virulence.

—Antibiotic and sulfonamide drugs are not effective in uncomplicated influenza cases. If secondary bacterial infection occurs as a complication, adequate treatment with these drugs should lessen the seriousness of the infections.

The committee pointed out that vaccine is now available in limited quantities. Much more will become available during the next few months, but until then physicians will have to decide how best to conserve the supply of vaccine. Two methods of injection have been suggested. One calls for one cubic centimeter to be injected subcutaneously. The other calls for one-tenth of a cubic centimeter to be injected intradermally.

(Continued on Page 74)

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References: 1. Ann. Int. Med. 44:1182 (June) 1956. 2. Current Med. Dig. 20:27 (Sept.) 1953.

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Diapers Do Not Cause Diaper Rash

(Continued from Front Advertising Section, Page 54)

limited to those "brief social occasions when prompt changing would be inconvenient."

Studies have shown that commercial laundering of diapers is much more effective than home laundering in removing and stopping the growth of ammonia-forming bacteria and in removing irritating detergents, the editorial said. The usual commercial process includes three initial warm and hot rinses, two soapings, bleaching, and three rinses in hot water followed by two rinses in chemicals which stop the growth of ammonia-forming bacteria.

Although commercial laundering is not essential to the prevention of diaper rash, the more a home laundering procedure is like that of commercial launderies, the better the protection.

Treatment of diaper rash varies according to the cause, but in any case, the diaper region should be kept dry and warm.

Preventive measures must be continued as long as diapers are worn, the editorial concluded.

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A palatable concentrate of 80% purified soy phospholipids (phosphatidyl choline, phosphatidyl ethanolamine and inositol phosphatide) with 20% wheat germ and oat flour in granular form. Dose: 2 to 3 heaping teaspoons (15 to 20 grams) daily; 15 grams supply 1.6 mg. thiamine hydrochloride (added).

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- **help prevent pustule formation**
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American Medical Association Committee Warns All Fevers Aren't Flu

(Continued from Page 66)

Until further information about the effectiveness of these two methods is available, the physician will have to decide for himself how the vaccine should be given to his patients, the report said.

The symptoms of Asian influenza consist of chills that occur with very little warning and temperature that climbs to 103° or 104°F. and remains in that range for three to four days. The fever is accompanied by headache and general muscle pains. As the fever subsides and the aches and pains gradually vanish, the patient is generally left weak.

There is actually no specific treatment. Naturally the healthy person with good habits of eating and sleeping "stands the best chance in a bout of any infectious disease," the report said. Once Asian flu strikes, bed rest and fluids are necessary. Hospitalization should be limited to patients who develop complications or to those with other diseases which might be aggravated by influenza.

All patients should be isolated insofar as it is convenient and every patient should be protected from sources of bacterial infections. During the acute stage of influenza, the patient should not be allowed to have visitors, the report concluded.

The special report was prepared by a subcommittee consisting of Drs. Cortez F. Enloe, Jr., New York, Max L. Lichter, Detroit, and David Henry Poer, Atlanta, Georgia, in consultation with the surgeon general of the U. S. Public Health Service.

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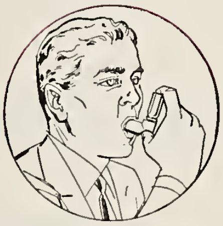

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(Continued from Front Advertising Section, Page 58)

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(Continued on Page 86)

Rubella-Pregnancy Study Shows Lower Rate of Deformities

Rubella in the first three months of pregnancy does not cause nearly as many congenital malformations as has been thought, a new study has shown.

In fact, the rates of such malformations reported in earlier studies are "fantastically high and incorrect," because the studies were fallacious in design, three New York public health researchers said in a recent issue of the *Journal of the American Medical Association.*

The new study, along with several other recent studies, indicates a malformation rate of only about 12 per cent as opposed to earlier studies which showed rates ranging up to 100 per cent, the researchers said.

An accompanying *Journal* editorial said, "The fact that the chances that the infant will be normal in spite of the mother's infection are much better than was formerly thought seems a valid reason not to interrupt the pregnancy. Most observers agree, however, that the wisest course is to see that all girls get rubella in childhood."

Drs. Morris Greenberg and Ottavio Pellitteri of the New York City Department of Health and Jerome Barton, B.A., of the New York State Department of Health pointed out in their article that many earlier studies have been fallacious because they started out with the defective child and retraced the path to discover what happened to the mother during her pregnancy.

No consideration was given to the normal babies born by women who had suffered rubella in pregnancy. Because these children were ignored in the studies, inaccurate percentages were obtained. For example, if 100 pregnant women give birth to 100 infants, of whom 10 are deformed, the incidence is 10 per cent. But if the study starts with the 10 deformed children and works back, the finding will be that all the mothers had rubella, thus giving a rate of 100 per cent.

Also the diagnosis of rubella was frequently inaccurate because it was not made by a physician. The mother had to remember an event which occurred a year or more before. She may have thought a rash was rubella when it wasn't.

The present study started with the mother. All New York women 15 to 45 years of age who contracted rubella during 1949-55 and whose cases were reported to the Department of Health were visited by a medical inspector. If they were pregnant, the date and place of expected delivery was noted. At the time of delivery, the inspector visited the hospital and examined the baby or obtained information from the physician. A year later the child was reexamined to see if any deformities had been discovered.

Of 2,528 women contracting rubella in the period, 233 were pregnant. Of the 103 women having rubella

(Continued on Page 82)

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Rubella-Pregnancy Study Shows Lower Rate of Deformities

(Continued from Page 78)

in the first three months of pregnancy, 10 were lost from the study and 48 had the pregnancy terminated (45 for rubella and three for other reasons). Twenty-eight normal infants were born. One woman gave birth to a single child with deformities and another to a pair of malformed twins.

There were three stillbirths and 12 fetal deaths before the pregnancies had come to term. The study's rate of 12 per cent for fetal deaths corresponds to the usual New York rate for fetal deaths in the early months of pregnancies uncomplicated by rubella, Dr. Greenberg said.

(Continued on Page 100)

Serious Penicillin Reactions Increasing

Reporting on a nationwide survey of more than four years, a Food and Drug Administration physician told the Fifth Annual Symposium on Antibiotics that the number of serious reactions to penicillin has been increasing annually. Dr. Henry Welch, chief of the FDA division of antibiotics, made the report.

Since 1945, Dr. Welch said, isolated reports of penicillin reactions with a relatively high percentage of fatalities have been appearing in medical literature. The survey, covering the principal antibiotics, showed a substantially higher number of reactions to penicillin than to other antibiotics.

(Continued on Page 90)

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Hyoscyamine Sulfate	0.031 mg.
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Prophenpyridamine Maleate	12.5 mg.
Phenylephrine Hydrochloride	10.0 mg.

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CLASSIFIED ADVERTISEMENTS

(Continued from Page 78)

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(Continued on Page 122)

Aseptic Meningitis Outbreak Studied in Minnesota

A recent Minnesota study has given further proof that viruses other than the three known types of polio virus may cause illnesses that resemble nonparalytic polio.

An epidemic of aseptic meningitis, an inflammation of the membranes enclosing the brain and spinal cord, occurred in Minnesota in 1956. It was reported in a recent issue of the *Journal of the American Medical Association.*

Laboratory study showed the outbreak to have been caused by Coxsackie B5 virus. This is apparently the first outbreak caused by only one type of Coxsackie virus; in all other reported outbreaks, several types were involved.

Superficially it is impossible to distinguish aseptic meningitis from nonparalytic polio. However, the development of new laboratory tests has made it possible to diagnose the diseases correctly by identifying their causative agents.

In the Minnesota outbreak, Coxsackie B5 viruses were isolated from 61 patients, none of whom had any polio viruses. The B5 type of Coxsackie virus may now be added to a number of other Coxsackie and ECHO viruses which are known to cause illness clinically indistinguishable from nonparalytic polio, the researchers said.

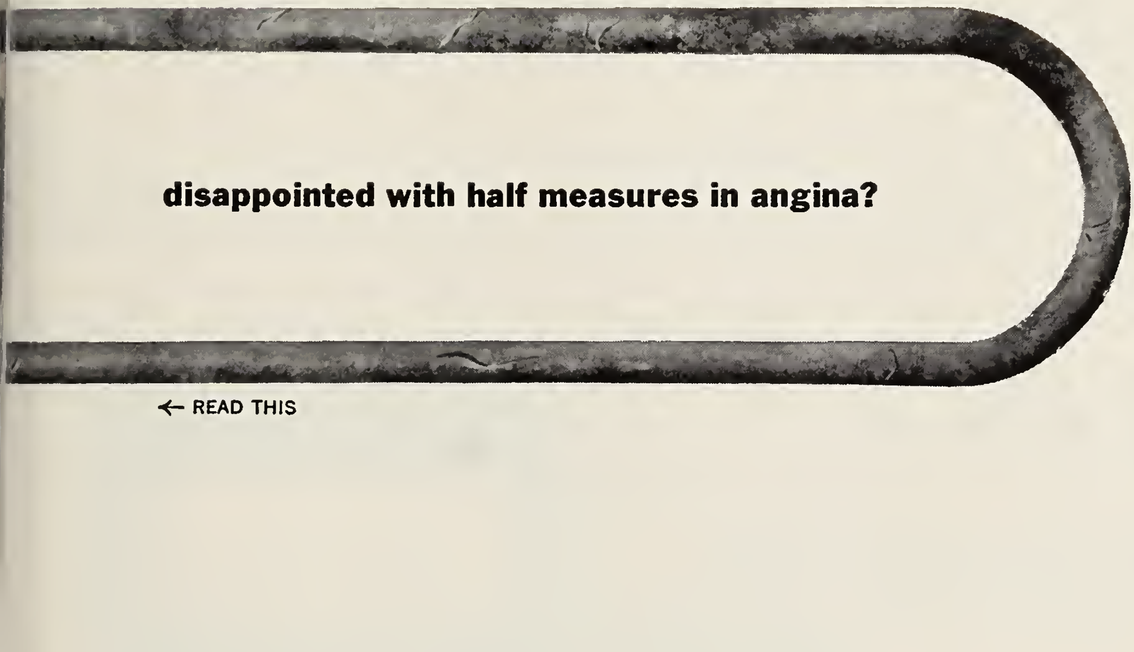
The 61 cases of aseptic meningitis occurred between July and December, the normal polio season in Minnesota. They were among 179 cases originally reported as "epidemic poliomyelitis" to the state board of health. In 66 of these 179 cases there was paralysis of one or both limbs and in 47 cases polio viruses were recovered.

All of the aseptic meningitis cases caused by Coxsackie B5 occurred in rural areas in which there were no cases of paralytic polio.

The illness in patients with Coxsackie B5 virus was characterized by sudden fever with severe headache, stiff neck, stiff back, or leg pains. Many patients also had gastrointestinal symptoms. None had any weakness or paralysis of limbs.

The fact that no polio viruses were isolated from any of the patients gave added proof that their illnesses were actually caused by B5 Coxsackie virus.

The authors are from the department of bacteriology and immunology, University of Minnesota Medical School, and the division of medical laboratories, Minnesota State Board of Health, Minneapolis. They are Drs. Jerome T. Syverton, Donald M. McLean, M. Martins da Silva, and Herman Kleinman, and Hanna B. Doany, M.S., Marion Cooney, M.S., and Henry Bauer, Ph.D.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Serious Penicillin Reactions Increasing

(Continued from Page 82)

In the survey, 3,419 case histories of severe reactions were classified, but 4,244 were excluded because of insufficient data. One third of the reported reactions to all antibiotics were classified as life-threatening and about nine-tenths of them were attributed to penicillin.

"The trend of increase in serious reactions, especially from penicillin given by intramuscular injection," the FDA says, "shows there should be a clear-cut indication of need before the drug is administered. The study of case histories indicates that there has not been indiscriminate use of penicillin by physicians." At one point Dr. Welch points out that the number of reactions to penicillin is still small when considering that millions of persons receive it each year and that it has saved tens of thousands of lives. He said the increased incidence of reactions is to be expected in the wise use of a highly antigenic substance.

—*A.M.A. Washington Letter*

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Mongolism and Leukemia

Two Minneapolis researchers suggested recently that leukemia and Mongolism may have a "common denominator."

A nationwide study has shown that the simultaneous occurrence of leukemia and Mongolism is much more frequent than can be explained by chance alone, they said. In fact, during a four-year period, the actual occurrence of these two unusual diseases was approximately three times greater than that which might have been expected by chance.

Writing in a recent issue of the *Journal of Diseases of Children*, an American Medical Association publication, Drs. William Krivit and Robert A. Good asked all doctors to report any simultaneous cases of the two diseases seen in small children during 1956 and 1957.

Leukemia is a serious blood disease in which there is an excess of white cells. Mongolism is an extreme form of mental deficiency marked by such physical characteristics as a flattened skull and slanted eyes. The cause of both diseases is unknown. Mongolism is thought to result from a physical, chemical, or infectious stress placed on the developing fetus between the sixth and ninth weeks of life. A similar cause has been suggested for leukemia, which has also been thought to be a type of virus infection or cancer.

The survey, which was prompted by scattered reports of the diseases occurring together, showed that in the years 1952-55 at least 34 cases of simultaneous leukemia and Mongolism occurred in American children four years and younger. The maximum number of cases to be expected by chance alone was 12.3 for the four-year period for all American children four years and younger, the doctors said.

The likelihood of 34 cases occurring by chance during four years would be less than once in 1,000 times, they said.

Of perhaps greater significance are the six cases of leukemia-Mongolism reported during the first half of 1956, they said. This is almost half of the theoretical total of 12.3 cases expected to occur in any four years.

If similar figures were found for 1956-57, the findings of this study would be even more convincing, the authors said. For this reason, they asked physicians to report all such cases to them.

Drs. Krivit and Good are associated with the Variety Club Heart Hospital, University of Minnesota.

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REFERENCES: (1) Greenblatt, R. B.: *J. Clin. Endocrinol.* 16:869, 1956. (2) Hertz, R.; Waite, J. H., & Thomas, L. B.: *Proc. Soc. Exper. Biol. & Med.* 91:418, 1956.

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Inflation and Medical Care

Since medical care and those who deliver it are integral parts of the American economy, it is well to take stock of the position of medical care in the current inflationary spiral. This period of inflation started in 1940 and continued through and after World War II, through the Korean war, and down to the present time with only minor interruptions. Five historical comparisons reveal the relative degree of inflation in the medical care sector: (1) commodity versus service price indexes, (2) medical care indexes versus the entire Consumer Price Index, (3) changes in the absolute and relative amounts of personal consumption expenditures for medical care, (4) changes in the percentages of one week's wages required to purchase a fixed amount of medical care, and (5) comparisons of the rate of increase in the average level of incomes of physicians with those for all gainfully employed persons.

During World War II the national debt increased from about 50 billion to 280 billion dollars in the form of government bonds; from the standpoint of their inflationary effects, these bonds may be regarded as greenbacks bearing interest. As has been true in earlier war cycles, prices of commodities and services were higher after World War II than they were during the war. Moreover, in a long inflationary period there is always a tendency for the prices

(Continued on Page 104)

Rubella-Pregnancy Study Shows Lower Rate of Deformities

(Continued from Page 82)

Eighty-nine women were in the second three months of pregnancy when they contracted rubella and 41 in the last three months. Among these there were three stillbirths, one congenital malformation, and four therapeutic abortions.

The incidence of congenital deformities among the live-born babies of women having rubella during the first three months of pregnancy was 9.7 per cent. In another New York study of pregnant women without rubella, the incidence of congenital malformations was 7 per cent, the researchers said.

While the incidence of malformations caused by rubella now appears to be about 12 per cent of the total births, large-scale studies with adequate comparisons among women without rubella are needed to ascertain exact incidence rates, they said. In the meantime it is still "medically unjustified" to recommend therapeutic abortions on the basis of the old high rates, and it is certainly "scientifically unsound" to say the risk is higher than the facts warrant. However, until more information is obtained on relative risks, physicians "owe it to their patients and to society" to advise parents to expose their young daughters to rubella. This is a mild disease in childhood, rarely causing complications and giving permanent immunity.

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Medical Advice on Flying

Physicians can do a lot toward easing the fear and discomfort some people associate with flying, an Air Force physician stated.

Writing in a recent issue of the *Journal of the American Medical Association*, Lt. Col. Frederick S. Spiegel (MC), U. S. Air Force, Washington, D. C., listed some of the things a physician needs to know if he is to advise his patients about traveling by air.

He pointed out that more and more people are flying each year. Last year over 25 million passengers traveled on United States domestic air lines. Many people have had no experience with flying and go to their physician for advice.

Among the things the physician should know about airline regulations is that permission must be granted by the public health officials before any person with a contagious or communicable disease may be transported across state lines.

Diabetics requiring insulin may travel only if their insulin and syringe are kept in their hand baggage in the passenger cabin.

Physicians generally agree that a woman with an uncomplicated pregnancy is not "sick" and can travel safely. However, if she wishes to fly in the very late stages of pregnancy, she must present a certificate from her physician stating that she will not deliver "for at least 72 hours" Colonel Spiegel said.

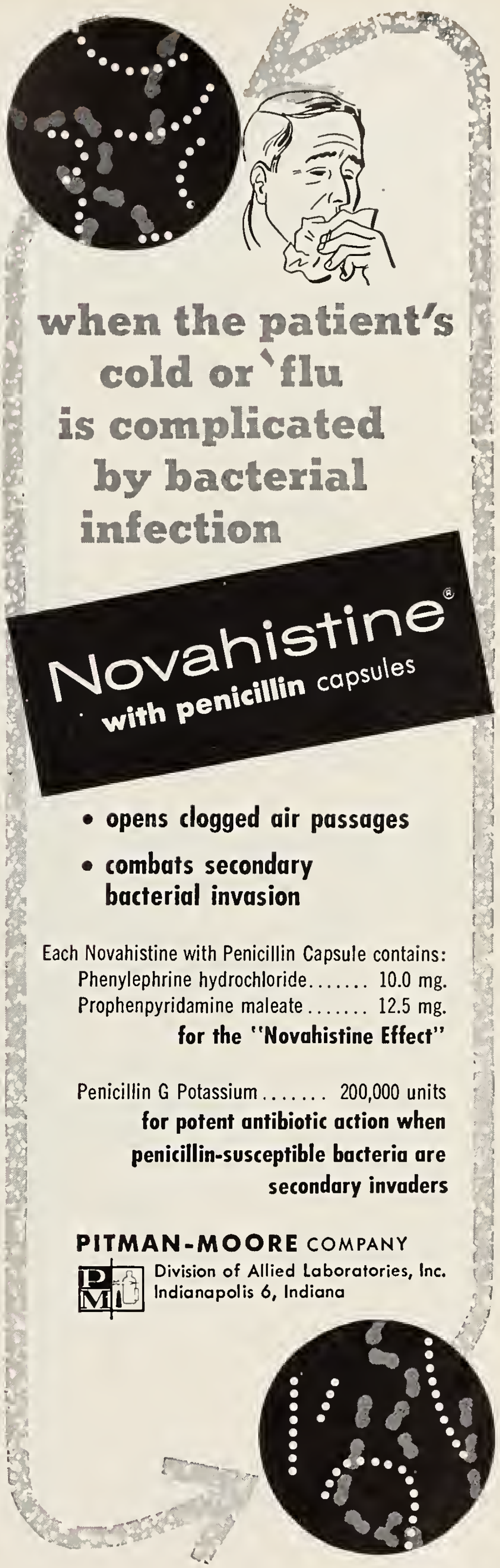
Infants less than six weeks old are not generally transported by commercial carriers unless there are extenuating circumstances. Then a pediatrician's certificate is requested, stating that the infant is healthy and physically fit to fly.

Patients recovering from recent coronary thrombotic attacks or those suffering from coronary insufficiency need careful examination before being advised to fly. Anemic patients and those with certain types of respiratory difficulty also need careful checking. "Children are only fair air travelers," the colonel said. Those under five years of age experience air-sickness and ear trouble five to 10 times more frequently than adults.

The increased susceptibility to airsickness may be related to insecurity and apprehension, while the ear discomfort is associated with the difficulty of teaching children to swallow while descending in an airplane.

Airsickness in adults is no longer a major problem, but when it does occur, it is five times more frequent among women than among male passengers. As with children, this is probably due to anxiety and apprehension. Fear of airsickness probably hastens its development.

There are several effective remedies for those who develop airsickness. The same drugs also prevent it if taken before flight. The value of reassurance by the physician in such cases cannot be overemphasized, Colonel Spiegel concluded.



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Inflation and Medical Care

(Continued from Page 100)

of commodities to rise first and the prices of services to lag behind and rise later. It would be expected then that medical care prices in this long period would rise more slowly at first and more rapidly later. This is precisely what has happened.

Service Prices Still Lag.—Consumer price indexes of the United States Bureau of Labor Statistics covering all the commodity prices which are included in the sample stood at 208.2, or 108 per cent above the 1935-1939 level in 1956; on the basis of the 1947-1949 level, the index was 109.8. The important point to observe, however, is that this 1956 index for all commodities (excluding services) on the basis of the long period was 208 as compared with only 194 for the entire (including services) Consumer Price Index; but on the basis of what has happened since 1949, this index for 1956 was a seemingly modest 109.8 as compared with the Consumer Price Index of 116.2. On the other hand, the index for all services (excluding commodities) on the basis of what has happened since 1940 was 185.2 in 1956, or less than the Consumer Price Index of 194.3. But on the basis of what has happened since 1949 only, the short-run period, the index for all services was 135.1, or definitely higher than the Consumer Price Index on this short-run basis. One can conclude, therefore, that on the basis of the entire inflationary period commodity prices have risen a good deal more than service prices, 208 over 185; the latter are still in the "catching up" stage.

This lag in service prices, and in medical care prices in particular, is stressed in an article by Elizabeth A. Langford* of the U. S. Bureau of Labor Statistics in the September issue of the *Monthly Labor Review,* the official publication of the U. S. Department of Labor. In a summary of the changes in the two decades she states (page 1053):

"Medical care prices followed about the same pattern as those for all services. Thus, at the end of 1956, the prices of services, including medical care, had almost regained the relationship they held with the prices of commodities in the midthirties. Since the Consumer Price Index measures price changes relative to 1947-49, the base period, the fact that medical care prices had advanced relatively slowly during the previous decade is likely to be ignored. Moreover, comparison of the medical care index with the all-items index or with the indexes for the major groups conceals the fact that the movement of medical care prices has been similar to that for other services combined."

Her phrase "had almost regained," a general observation, is stated in terms of 1956 index numbers

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*Langford, E. A.: Medical Care in the Consumer Price Index, 1936-56, Monthly Labor Review, 80:1053-1058, Sept. 1957.

(Continued on Page 108)

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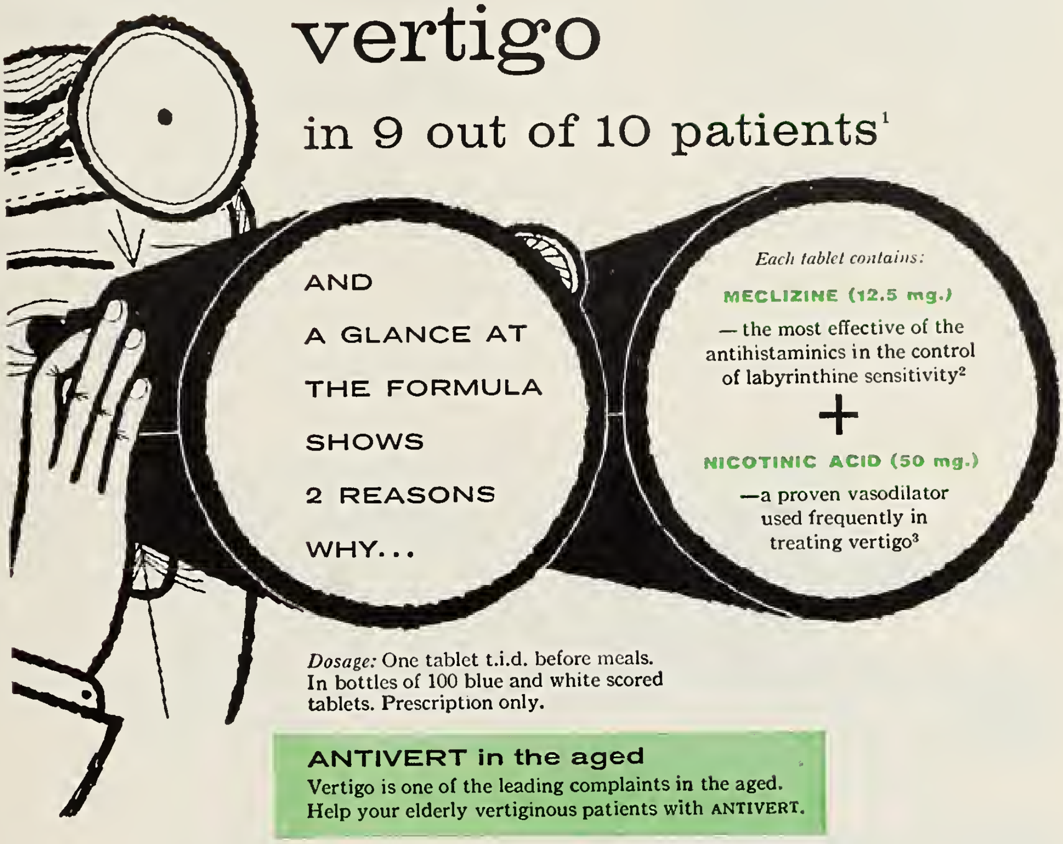

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References: 1. Menger, H.C.: Clin. Med. *4*:313 (March) 1957. 2. Charles, C.M.: Geriatrics *2*:110 (March) 1956. 3. Shuster, B.H.: Med. Clin. of N. Amer. *40*:1787 (Nov.) 1956.

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Inflation and Medical Care

(Continued from Page 104)

in the paragraph above—208 for commodities versus 194 for all items, and 185 for services versus 194.

In order to emphasize changes in various service prices, the same author lists the following percentage increases between 1936 and 1956: Hospital room rates, 265 per cent; men's haircuts, 221 per cent; shoe repairs, 135 per cent; movie admissions, 114 per cent; public transportation, 113 per cent; laundry service, 108 per cent; automobile repairs, 84 per cent; dentists' fees, 82 per cent; general practitioners' fees, 73 per cent; surgeons' fees, 60 per cent.

The Medical Care Indexes.—For 1956 the group of indexes classified as medical care and drugs (mostly services) stood at 184, or approximately 10 points below the entire Consumer Price Index on the long-time basis. On the other hand, on the basis of inflation since 1949 the index for medical care and drugs stood at 132.6, or 16 points above the entire Consumer Price Index. Thus, in the long-run period of inflation, the 1956 index of medical care and drugs was 10 points below the Consumer Price

(Continued on Page 109)

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*REFERENCE: J.A.M.A. 163: 359, 1957 (February 2)

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Inflation and Medical Care

(Continued from Page 108)

Index but 16 points above for the short-run period since 1949. So in the area of medical care and drugs the long-time lag in service prices is still evident. The Bureau of Medical Economic Research of the American Medical Association has prepared a publication which presents these and other breakdowns of the indexes on both the 1935-1939 and the 1947-1949 base periods.† In the remainder of this review of inflation and medical care, comparisons will be confined to the long-run period because this inflationary period began in 1940 and not in 1949, as most adults know. Most monthly press releases on changes in the Consumer Price Index stress the changes since 1949 and present only one index for the entire medical care field.

In relating medical prices to inflation, comparisons of some of the subindexes under medical care and drugs with the entire Consumer Price Index of 194.3 in 1956 have somewhat more significance to the members of the medical profession. The indexes of physicians' fees included in the sample developed by the U. S. Bureau of Labor Statistics were below that of the Consumer Price Index for 1956 with the single exception of the fee for an "obstetric case." This particular index stood at 218.1 in 1956, or 24 points above the entire Consumer Price Index. There has been an enormous increase in the number of births, the actual increase since 1945 being from 2,700,000 to 4,100,000. From a strictly supply and demand standpoint, one would expect a higher rise in such fees than in other medical fees generally. Moreover, there are some who contend that medical fees for an obstetric case were at an unusually depressed level before World War II when the birth rate was very low and the obstetric case package contained fewer prenatal services. Whatever the explanations may be, the index for fees for an obstetric case stands out as the only exception to the general rule that the indexes for physicians' fees in 1956 were below the entire Consumer Price Index. The 1956 index for general practitioners' fees was 172.6; for an office visit, 172.6; for a house visit, 160.9; for an appendectomy, 155.0; and for a tonsillectomy, 164.9.

Hospitals and More Babies.—The greatest change in the medical care field, however, has come in the index of hospital room rates, which stood at 356 for 1956. During this long period of inflation hospitals have been unusually exposed to the inflationary forces, particularly in the matter of wages and salaries. Moreover, the change from an average of one employee per patient to two employees per patient has harried many administrators of our vol-

(Continued on Page 114)

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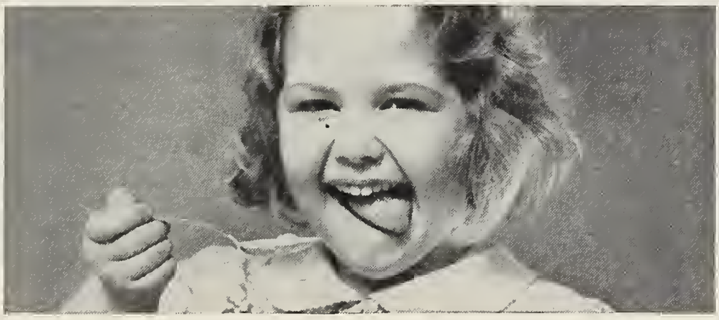
†Medical Care Expenditures and Prices, 1955, Miscellaneous Publication M-106B, Bureau of Medical Economic Research, American Medical Association, Chicago, 1956.



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1. Gruber, C. M., Jr.: J.A.M.A., *164:* 966 (June 29), 1957.

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Inflation and Medical Care

(Continued from Page 109)

untary hospitals. Both the quality and quantity of hospital services have changed considerably since 1940. The indexes of dentists' fees, like those for physicians fees, have also stayed well under the level of the Consumer Price Index. Our conclusion regarding the movement of prices in the medical care field is that these prices, to the extent indicated by the indexes, have behaved rather favorably for consumers, with the two exceptions noted. (Preliminary estimates of the medical care subindexes for midyear 1957 suggest that the 1956 relationship between them and the Consumer Price Index continues. Also, the index of service prices is still lagging behind the index for all commodities.)

In the third place, the influence of inflation is also manifested in the expenditures which consumers make for medical care and for all other items. According to the United States Department of Commerce personal consumption expenditures during 1956 for medical care totaled $12,106,000,000. In both 1955 and 1956 the total expenditures classified as those for hospital services exceeded those for services of physicians; the amounts for 1956 were

(Continued on Page 117)

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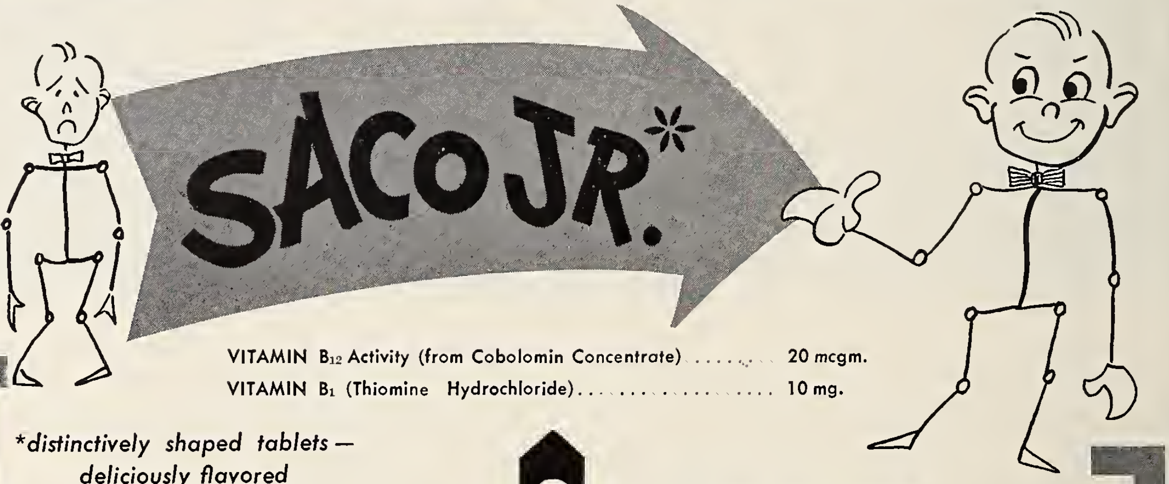

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Inflation and Medical Care

(Continued from Page 114)

$3,451,000,000 for hospitals and $3,269,000,000 for physicians' services. Again it must be stressed that the great increase in the number of births and the upward trend in the proportion of all babies born in hospitals has been a very powerful factor in increasing expenditures for both services.

The members of the medical profession do not need to be reminded that pregnancy is not a disease. Reproduction does involve medical care expenditures, but it is obvious that increases in such expenditures do not indicate a deterioration in the health of the American people. The same government source also reports considerably greater 1956 expenditures for recreation than for all forms of medical care and considerably higher expenditures for such items as alcoholic beverages or tobacco than for either physicians' services or hospital services. In fact, even the expenditures for personal care exceeded those for hospital services.

Even more meaningful than dollars of expenditure are the percentages of personal consumer expenditures devoted to these different items. The 1956 percentage for all medical care items was 4.5 as compared with 4.4 per cent in 1955. The actual proportion for physicians' services alone was 1.2 in both years, whereas there was an increase from 1.2 to 1.3 per cent for hospital services. Within the medical care field these expenditures can be better compared by treating the total expenditures for all medical care as 100 cents, the medical care dollar. The proportion of the medical care dollar being paid to physicians has declined steadily from 1929, when it was 32.7 cents, to 27.2 cents in 1955 and 27.0 cents in 1956. On the other hand, the proportion of the medical care dollar spent for hospital services has climbed rapidly from 13.7 cents in 1929 to 27.7 cents in 1955, and to 28.5 cents in 1956. Likewise, the dentists' share has steadily declined over this same interval of time.

So the general conclusion as regards the proportion of the so-called consumer budget going for medical care is that the hospitals' share has been steadily rising until it was actually the largest share in both 1955 and 1956 and the physicians' share and the dentists' share have been steadily declining. During this period of time, medical progress has occurred at an exceedingly rapid rate and the improvements in the care of patients could scarcely have been achieved without some increase in the proportion of the consumer's dollar going for hospital services.

Wage Share for Medical Care.—For employees of industrial establishments who think in terms of weekly wages this story of the relationship of inflation to medical care can be presented in still another manner, the fourth comparison. Suppose that a physician's fee for a dozen office visits or a

(Continued on Page 122)

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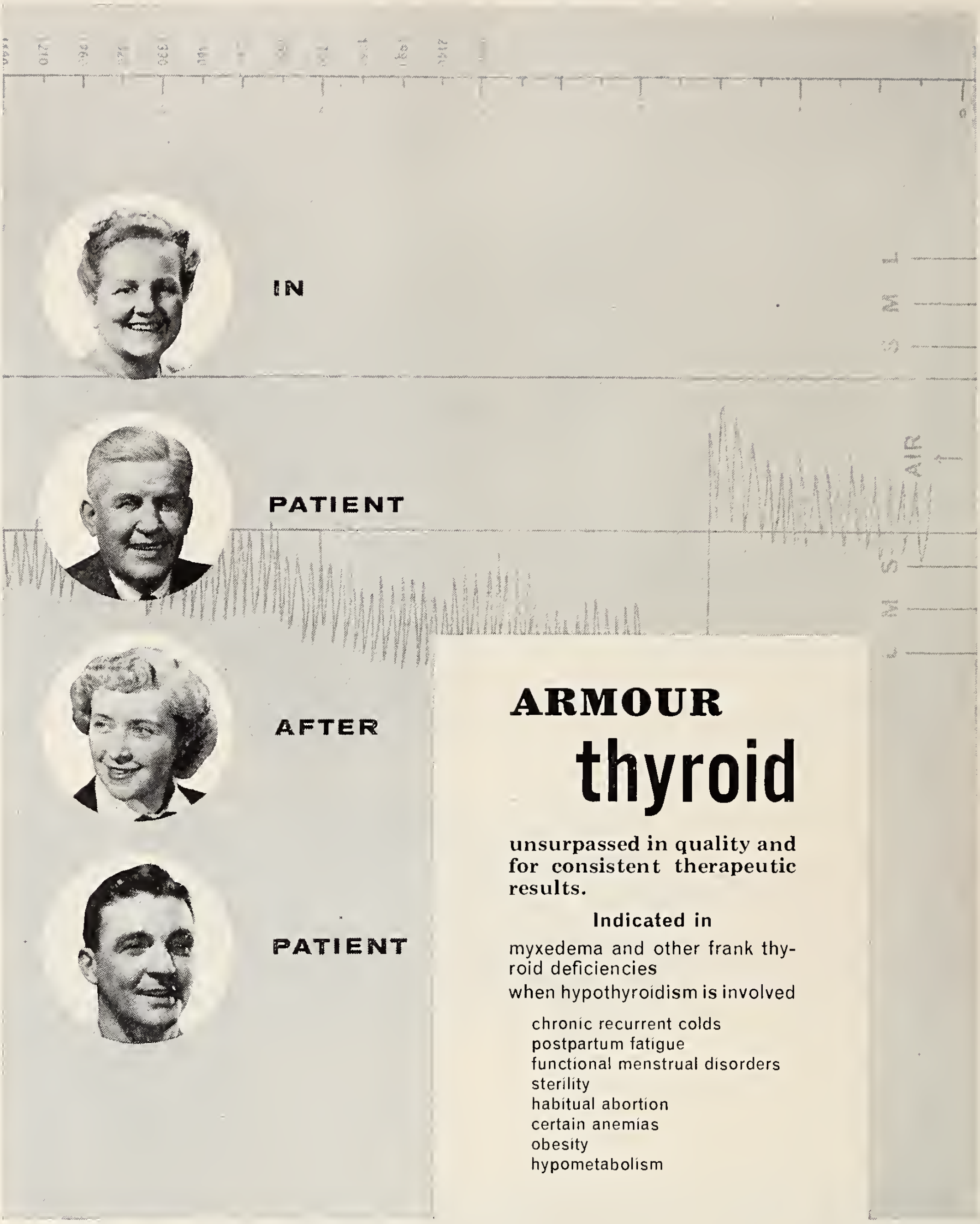

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2. Wagner, H.: Landarzt *31*:496, 1955.
3. Jörgensen, G.: Arztl. Wchnschr. *10*:82, 1955.

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Inflation and Medical Care

(Continued from Page 117)

dozen house visits would have cost an entire week's wages before World War II. The important question to the wage earner is whether the same amount of medical service would cost more than a week's wages today or less than a week's wages. For physicians' fees the answer for 1956 is 48 per cent of a week's wages and 61 per cent for an obstetric case. The same number of days in a hospital which would have cost a full week's wages in 1935 to 1939 would have cost 99 per cent of a week's wages in 1956. Since such comparisons do not make allowances for the great increase in taxation, particularly in the taxes deducted from the weekly pay envelope, the standard of comparison here might be considered on a basis of the entire Consumer Price Index—say, a "market basket" containing the proper number of units of each of the items which are priced in the development of the Consumer Price Index. That standard of comparison for 1956 was 54 rather than 100 per cent, and those items which required more than 54 per cent of a week's wages may be considered less favorable in the cost to the consumer.

Physicians' Incomes.—Turning now to the physician rather than the patient for the fifth comparison, we find that according to the U. S. Department of Commerce the average level of physicians' incomes in the United States was 122 per cent higher in 1951 than in 1929. The average level of incomes of all gainfully employed was 125 per cent higher. Thus during a much longer period of time the incomes of physicians and the incomes of all gainfully employed people have moved up at about the same pace. The United States Department of Commerce does not regard the studies it made of the incomes of physicians immediately before World War II as sufficiently detailed and comprehensive to provide a standard of comparison with the present levels. But that agency has made estimates for the years since 1951 and these, like the data for 1929 and 1951, show that this trend is continuing.

Other and more detailed comparisons could be made, but these five historical comparisons of the extent of inflation in the medical care sector of our national economy indicate that this sector has performed reasonably well for the consumer. Many citizens are becoming worried about the extent of inflation. As citizens, physicians should not be content to rest on their oars but should participate in discussions in their communities on ways and means to stem this dangerous inflationary tide.

Some community leaders are already suggesting buyers' strikes like those of 1919; others are urging local groups to petition the federal government to curtail spending. But if these and other attempts fail it behooves the members of the medical profession to continue their efforts to moderate the ravages of inflation in the medical care sector.

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SIXTH DISTRICT—Donald C. Harrington (1960), 127 East Acacia Street, Stockton 3. Calaveras, Fresno, Kern, Kings, Madera, Mariposa, Merced, San Joaquin, Stanislaus, Tulare and Tuolumne Counties. Howard 6-8546.

SEVENTH DISTRICT—James H. McPharlin (1958), 11 Maple Street, Salinas, Monterey, San Benito, San Mateo, Santa Clara and Santa Cruz Counties. HArrison 4-6176

EIGHTH DISTRICT—Samuel R. Sherman (1959), 2255 Van Ness Avenue, San Francisco 9, San Francisco County. PRospect 5-5835.

NINTH DISTRICT—Donald D. Lum (1960), 2225 Central Avenue, Alameda. Alameda and Contra Costa Counties. LAkehurst 2-1911.

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T. Eric Reynolds (1959), 431 Thirtieth Street, Oakland 9, TWinoaks 3-0422.
Arthur E. Varden (1960), 780 East Gilbert St., San Bernardino, TUrner 5-7324
Ivan C. Heron (1960), 490 Post Street, San Francisco 2, SUtter 1-4720.

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†Deceased.

ROSTER OF COUNTY MEDICAL SOCIETIES, CALIFORNIA MEDICAL ASSOCIATION

(County society secretaries are requested to notify California Medicine promptly when changes are indicated in their roster information.)

Alameda-Contra Costa Medical Assn., 6230 Claremont Avenue, Oakland 18. Meets Third Monday, 8:15 p.m., Hunter Hall, Oakland.
Pres., Grant Ellis, 2298 Durant Ave., Berkeley.
Secy., John Morrison, 333 Estudillo Ave., San Leandro.

Butte-Glenn Medical Society. Meets Fourth Thursday.
Pres., Wm. Chiapella, 184 E. Fifth St., Chico.
Secy., Rufus C. Rucker, 188 E. Fifth St., Chico.

Fresno County Medical Society, 2155 Amador, Fresno. Meets Second Tuesday, 6:30 p.m., Sunnyside Country Club.
Pres., James M. Arthur, 416 Fulton-Fresno Bldg., Fresno.
Secy., David R. Taylor, 715 Patterson Bldg., Fresno.

Humboldt County Medical Society. Meets Second Thursday.
Pres., Herman A. Iverson, 814 P St., Eureka.
Secy., Walter H. Yeider, 730 Seventh St., Eureka.

Imperial County Medical Society. Meets Second Tuesday, 8 p.m., Pioneer Memorial Hospital, Brawley.
Pres., A. A. Adames, I. V. Tuberculosis Sanatorium, Holtville.
Secy., Ernest Brock, 200 S. Imperial Ave., Imperial.

*Inyo-Mono County Medical Society. Meets Fourth Tuesday except December, January, February.
Pres., J. Lloyd Mason, 512 West Line, Bishop.
Secy., Robert W. Denton, 611 W. Line, Bishop.

Kern County Medical Society, 2603 "G" Street, Bakersfield. Meets Third Tuesday, 7:30 p.m., Saddle and Sirloin, except June, July, August.
Pres., John K. Coker, 2603 G St., Bakersfield.
Secy., Wm. H. Moore, Jr., 2603 G St., Bakersfield.

***Kings** County Medical Society. Meets Second Monday, 8:00 p.m., Legion Hall, Hanford.
Pres., Harold J. Jacob, Corcoran.
Secy., George D. Guernsey, 214 Heinlen St., Lemoore.

Lassen-Plumas-Modoc County Medical Society. Meets on call.
Pres., Wilbur C. Batson, 224 Grand, Greenville.
Secy., Fred J. Davis, Jr., 70 S. Pine, Susanville.

Los Angeles County Medical Assn., 1925 Wilshire Blvd., Los Angeles 57. Meets First and Third Thursdays, 1925 Wilshire Blvd., Los Angeles.
Pres., J. Norman O'Neill, 1930 Wilshire Blvd., Los Angeles 57.
Secy., William F. Quinn, 1930 Wilshire Blvd. Los Angeles 57.

Madera County Medical Society.
Pres., L. A. Solberg, 115 South A St., Madera.
Secy., Lester E. Broun, 150 North 11th St., Chowchilla.

Marin County Medical Society, 1703 Fifth Ave., San Rafael. Meets First Thursday, 7:00 p.m.
Pres., Edward F. Healey, 1703 Fifth St., San Rafael.
Secy., Russell R. Klein, 1703 Fifth St., San Rafael.

Mendocino-Lake County Medical Society.
Pres., Patrick R. Allanson, 728 S. State St., Ukiah.
Secy., R. B. Smalley, 361 S. Main, Willits.

Merced County Medical Society. Meets Fourth Thursday, Hotel Tioga, Merced.
Pres., Edward A. Jackson, 2630 M St., Merced.
Secy., Max Brannan, 650 W. 20th St., Merced.

Monterey County Medical Society, P. O. Box 308, Salinas. Meets First Thursday.
Pres., Keith Corp, 11 Maple St., Salinas.
Secy., Donald Taugher, 58 Via Castanada, Monterey.

Napa County Medical Society. Meets Second Wednesday.
Pres., Harry Ehrlich, 1130 First St., Napa.
Secy., Thomas W. Ledwich, 990 Trancas St., Napa.

Orange County Medical Association, 1226 N. Broadway, Santa Ana. Meets First Tuesday, 7:00 p.m.
Pres., Carl J. Paul, 605 East Chapman Ave., Orange.
Secy., William H. Wickett, Jr., 211 North Pomona St., Fullerton.

Placer-Nevada-Sierra County Medical Society. Meets Second Wednesday.
Pres., B. W. Hummelt, Nevada City.
Secy., T. J. Rossitto, 1166 High St., Auburn.

Riverside County Medical Association, 4175 Brockton Ave., Riverside. Meets Second Monday, 8:00 p.m., El Loro Room, Mission Inn.
Pres., Gordon MacDonald, 4294 Orange Street, Riverside.
Secy., Donald Abbott, 4029 Brockton Ave. Riverside.

Sacramento Society for Medical Improvement, 2731 Capitol Ave., Sacramento. Meets Third Tuesday, 8:30 p.m., Sutter Hospital Auditorium.
Pres., Carl E. Burkland, 2901 Capitol Ave., Sacramento.
Secy., Geoffrey A. Fricker, 1215 28th St. Sacramento.

San Benito County Medical Society. Meets First Thursday, Hazel Howkins Memorial Hospital, Hollister.
Pres., Kent S. Taylor, 345 Fifth St., Hollister.
Secy., R. L. Hull, Bank of America Bldg. Hollister.

San Bernardino County Medical Society, 615 D St., San Bernardino. Meets First Tuesday 8:00 p.m., San Bernardino County Charity Hospital.
Pres., Ben D. A. Miano, 1020 "D" St., San Bernardino.
Secy., Cline D. Mapes, 1020 "D" St., San Bernardino.

San Diego County Medical Society, 3427 - 4th Ave., San Diego 3. Meets Second Tuesday, Mission Valley Country Club, 950 West Camino Del Rio.
Pres., James C. MacLoggan, 525 Hawthorn St., San Diego 1.
Secy., James I. Knott, 3712 30th St., San Diego 4.

San Francisco Medical Society, 250 Masonic Ave., San Francisco 18. Meets Second Tuesday, 8:15 p.m., 250 Masonic Ave., San Francisco 18.
Pres., Donald M. Campbell, 250 Masonic Ave., San Francisco 18.
Secy., Roberta Fenlon, 250 Masonic Ave., San Francisco 18.

San Joaquin County Medical Society. Meets First Thursday, 8:15 p.m., 936 N. Commerce St., Stockton.
Pres., James J. Heffernan, 1003 Medico-Dental Bldg., Stockton.
Secy., F. A. McGuire, 307 Medico-Dental Bldg., Stockton.

San Luis Obispo County Medical Society. Meets Third Saturday, 7:00 p.m., Anderson Hotel, San Luis Obispo.
Pres., Albert Gazin, 743 Pismo St., San Luis Obispo.
Secy., Anthony V. Keese, 990 Pacific, San Luis Obispo.

San Mateo County Medical Society, 122 Second Ave., San Mateo. Meets Third Tuesday.
Pres., Henry A. Brown, 77 N. San Mateo Dr., San Mateo.
Secy., William H. Thompson, 1515 Trousdale Dr., Burlingame.

Santa Barbara County Medical Society, 300 West Pueblo St., Santa Barbara. Meets Second Monday, Cottage Hospital.
Pres., Douglas F. McDowell, 317 W. Pueblo St., Santa Barbara.
Secy., Robert I. Card, 300 W. Pueblo St., Santa Barbara.

Santa Clara County Medical Society, 1960 The Alameda, San Jose 26. Meets Third Monday except in July and August.
Pres., Thomas N. Foster, 630 E. Santa Clara St., San Jose.
Secy., Carl O. Carlson, 660 E. Santa Clara St., San Jose.

Santa Cruz County Medical Society. Meets every Second Month, Second Tuesday. Time, place to be announced.
Pres., James Spencer, 135 Monte Vista, Watsonville.
Secy., William Cress, 526 Soquel Ave., Santa Cruz.

Shasta-Trinity County Medical Society. Meets First Monday.
Pres., Paul B. Stratte, 2005 Court St., Redding.
Secy., Roland R. Jantzen, 1726 Market St., Redding.

Siskiyou County Medical Society. Meets Sunday on call.
Pres., Isaac Spomer, Box 398, Tulelake.
Secy., R. W. Bayuk, 750 South Main Street, Yreka.

Solano County Medical Society. Meets Second Tuesday, 8:00 p.m., at different meeting places.
Pres., O. S. Nesting, 841 Georgia, Vallejo.
Secy., Harle B. Grover, 839 Louisiana Street, Vallejo.

Sonoma County Medical Society, 300 American Trust Bldg., Santa Rosa. Meets Second Thursday.
Pres., Walter E. Weber, Room 304, American Trust Bldg., Santa Rosa.
Secy., Clayton B. Taylor, Room 304, American Trust Bldg., Santa Rosa.

Stanislaus County Medical Society, 702 - 18th St., Modesto. Meets Third Tuesday of the month, 7 p.m., Hotel Covell, Modesto.
Pres., Guerne W. DeLappe, 301 Downey Ave., Modesto.
Secy., Robert W. Purvis, 709 18th St., Modesto.

Tehama County Medical Society. Meets at call of President.
Pres., G. W. Ingle, 304 Solano St., Corning.
Secy., L. Wolfe, 75 Belle Mill Rd., Red Bluff.

Tulare County Medical Society.
Pres., Cyril H. Johnson, 795 Cherry Ave., Tulare.
Secy., Victor A. Badertscher, 499 North L St., Dinuba.

Ventura County Medical Society. Meets Second Tuesday, 7:15 p.m., Colonial House, Oxnard.
Pres., Joseph F. Maguire, 2755 Loma Vista Rd., Ventura.
Secy., F. K. Helbling, 34 N. Ash St., Ventura.

Yolo County Medical Society. Meets First Wednesday.
Pres., Ernie A. Young, 1st and Main Sts., Winters.
Secy., James A. Kennedy, 218 F St., Davis.

Yuba-Sutter-Colusa County Medical Society. Meets Second Tuesday.
Pres., Rocco A. Montano, 316 G St., Marysville.
Secy., Robert I. Hodgin, Box 749, Marysville.

*1956 Officers.

(For roster of C.M.A. committees and other organizations, see last month's issue.)

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Electric Shock's Effect on Heart Described

Touching a noninsulated high voltage electric line does not necessarily produce permanent—or even severe—damage to the heart.

A case illustrating one type of heart reaction to accidental electric shock and the excellent recovery following such an accident was reported in the September 28 issue of the *Journal of the American Medical Association* by Dr. William H. Wehrmacher, Northwestern University Medical School, Chicago.

A 52-year-old lineman was working astride a pole supporting high-tension electric wires, when his back, wet with sweat and covered only by a cotton shirt, touched a noninsulated 2,200-volt line. At the same time his right arm touched an insulated 110-volt line. The brief contact produced a buzzing sound heard by a nearby workman.

The lineman jerked away and finished the job. His arm and back were slightly burned. When seen by a physician the next day, his heart was found to be functioning abnormally. The electrocardiograph revealed that the lower chambers were contracting irregularly and the upper chambers were fibrillating.

Within five days the heart had returned naturally to a normal beat and the patient appeared to suffer no serious consequences. His job was changed to one which did not require work with high-tension circuits or exertion. Two years later he showed no cardiac symptoms and could climb stairs as readily as ever.

In most instances of atrial fibrillation, the heart's rhythm returns to normal spontaneously or after treatment with drugs, usually without leaving any permanent damage, Dr. Wehrmacher said.

United States Agencies Warn of Misleading Claims for Flu Drugs

Two United States agencies, the Federal Trade Commission and the Food and Drug Administration, jointly warn drug manufacturers against using "false or misleading claims that their drug products are effective in preventing or treating Asian influenza."

"The Food and Drug Administration will take prompt action against any false and misleading claims by medicine manufacturers that products of limited benefit can effectively prevent or cure Asian flu or its complications. Such claims are contrary to the federal law and the public interest . . . years of extensive research . . . have shown inoculation with vaccine is the only reliable means of preventing influenza. The diagnosis of Asian flu and particularly the treatment of more serious complications are matters requiring the attention of a physician. Some drug preparations will relieve some of the discomforts of influenza, and these have a proper place in treating the patient. But aside from the vaccine there are no drugs available to prevent this disease. The public should be on guard against unwarranted claims for Asian flu medicines and should seek the advice of a physician for proper and safe means of prevention and treatment of the disease . . ."

"It is the duty of the Commission to stop false and misleading advertising. . . . The Commission will proceed against any person or corporation who attempts to associate his product with a disease it cannot prevent, alleviate, nor cure. . . . The Commission is actively checking all media of advertising and will move promptly to eliminate any claims that are false or misleading. It will be guided by the best medical opinion available."

—*A.M.A. Washington Letter*

Prolonged TV Watching May Cause Leg Disorders

Prolonged sitting in awkward positions while watching television may produce serious circulatory disorders in the legs, a Philadelphia physician stated.

Writing in the October 12 issue of the *Journal of the American Medical Association*, Dr. Meyer Naide reported three cases of blood clots occurring in the leg vessels after the patients had sat in awkward positions watching TV. Similar disorders may occur after driving long distances in a car, especially in tall men who are "peculiarly susceptible" to such ailments, he said.

Dr. Naide recommended that television viewers get up and move about at least once an hour in addition to moving their legs frequently. Girdles and other tight garments also should be removed before prolonged TV watching.

All three patients recovered with relatively few effects after treatment with anticoagulant and vasodilator drugs.

One man sat with the back of his knee pressed against the edge of the chair for one and a half hours; another man with his leg thrown over the arm of the chair for an hour, and a woman with her leg tucked under her off and on for two hours.

The men had venous thrombosis of the leg, followed by pulmonary embolism. The woman had a thrombosis in the femoral artery of the leg.

Dr. Naide also mentioned an earlier report of 21 sudden deaths from pulmonary embolism in persons in or leaving English air-raid shelters during World War II. The cause was venous thrombosis in the legs, resulting from long periods of sitting on chairs or benches with the edges compressing the veins.

Dr. Naide is associated with the Woman's Medical College of Pennsylvania and the Albert Einstein Medical Center, Philadelphia.

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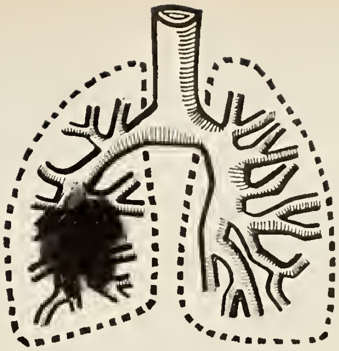

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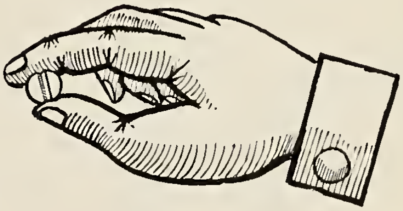

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Blood Sludge Called Cause Of Ear Disorders

A New York otolaryngologist believes that "sludging" of the blood, brought on by emotional difficulties, is involved in the development of several ear disorders.

Examination of the eyes' blood vessels has revealed clumps of red blood cells, or sludge, circulating in the blood during acute, chronic, and progressive illness, in old age, after severe burns or injuries, and after emotional upheavals, Dr. Edmund Prince Fowler said.

The sludging seems to be a reaction to strain—either physical as in an injury or illness, or emotional, Dr. Fowler said in the October issue of *Archives of Otolaryngology*, an American Medical Association publication.

He observed such sludge in various types of sudden and progressive deafness, in Meniere's disease, and in otosclerosis.

When blood cells aggregate in clumps, a shortage of oxygen develops in the area. This happens because the clumps clog the blood vessels and prevent the normal flow of blood. In addition, the cells' ability to take up and discharge oxygen is curtailed, since most of their surfaces are smothered. If the oxygen is cut off too long, damage to surrounding cells may result. This may be what happens in ear disorders.

He noted that most patients with otosclerosis who show sludging have histories of unresolved "frustrations," "abuses," "mental and bodily illness," and "emotional hypersensitivity."

Sometimes during the inactive periods of Meniere's disease and otosclerosis, little or no sludge may be seen, but it may be made to reappear or increase by even "apparently trivial emotional repercussions," Dr. Fowler said.

During attacks of head noises or dizziness sludging of the blood regularly occurs. It is also found after the sudden onset of deafness. This strongly suggests that sudden deafness is caused by an oxygen shortage in the ear's labyrinth due to blocking of the circulation.

Some drugs which stop blood coagulation help prevent sludging in the early stages. However, the first step in reducing sludging—and perhaps preventing ear disorders—is for the patient to adjust to his so-called "emotional instabilities." The patient must face facts and learn to stop "overwishful thinking" and to adapt to disappointments and frustrations.

"Aggravation causes aggregation," Dr. Fowler stated.

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(Continued on Page 58)

American Medical Association Committee Prepares Poisoning First Aid Rules

Speed in starting first-aid measures is essential after accidental poisoning, according to the American Medical Association's Committee on Toxicology.

First aid measures are aimed at helping to prevent absorption of the poison and must be started at once, the committee said in a new pamphlet issued as a guide for the public in the treatment of accidental poisoning. The pamphlet's instructions are reprinted in the October 12 issue of the American Medical Association's *Journal.*

When poisoning occurs, one person should begin treatment while another calls a physician. When only one person is available to give treatment, he should call a physician first if the poison is a corrosive or a petroleum product. A corrosive may be an acid substance such as a toilet bowl cleaner or an alkali such as household bleach.

When a noncorrosive poison is swallowed, vomiting should be induced and then a physician called. Vomiting can be started by giving the patient milk, plain water, or warm salt water, or by placing the blunt end of a spoon or the finger at the back of the patient's throat.

Vomiting should not be induced if the patient is unconscious, in a coma, or in convulsions; has swallowed petroleum products, such as kerosene, gasoline, or lighter fluid, or has swallowed a corrosive, such as a rust remover, styptic pencil, lye, washing soda, or ammonia water.

Symptoms of corrosive poisoning are severe pain, burning sensation in mouth and throat, and vomiting.

When retching and vomiting begin, the patient should be placed face down with the head lower than the hips. This prevents the vomitus from entering the lungs and causing further damage.

In the case of inhaled poisons, the patient should be carried to fresh air immediately, his clothing loosened, and artificial respiration begun if breathing has stopped or is irregular. The patient should be kept warm and as quiet as possible.

With skin contamination, the skin should be drenched with water. A stream of water should be held on the patient while removing his clothes. Rapidity in washing is most important in reducing the extent of injury. When the eyes are contaminated, they should be washed immediately with a gentle stream of running water. Chemicals should not be used, since they may increase the extent of injury.

Chemical burns also should be washed with large quantities of running water, except those caused by phosphorus. Ointments, greases, powders, and other drugs normally used for burns should be avoided.

Alcohol should not be given in any kind of poisoning.

The first-aid instructions may be obtained by writing to the A.M.A. Committee on Toxicology, 535 North Dearborn Street, Chicago 10, Illinois.

Achrocidin is indicated for prompt control of undifferentiated upper respiratory infections in the presence of questionable middle ear, pulmonary, nephritic, or rheumatic signs; during respiratory epidemics; when bacterial complications are observed or expected from the patient's history.

Early potent therapy is provided against such threatening complications as sinusitis, adenitis, otitis, pneumonitis, lung abscess, nephritis, or rheumatic states.

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Tablets

Each tablet contains:

Achromycin® Tetracycline	125 mg.
Phenacetin	120 mg.
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Each teaspoonful (5 cc.) contains:

Achromycin® Tetracycline equivalent to tetracycline HCl	125 mg.
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Medical Assistants Hold 3-Day Convention

The girls who work in physicians' offices recently proved their desire to further their efficiency and improve the quality of their services. Over 400 of them turned out for the first national convention of the American Association of Medical Assistants in San Francisco, a three-day educational session.

Leo Brown, American Medical Association director of public relations, who attended the convention, reports that the organization, formed in Milwaukee last year, secured 4,700 members in 1957 and expects its total membership to climb to 5,000 in the coming months. Nurses, secretaries, technicians, receptionists, and other types of medical office aides are members of American Association of Medical Assistants, which seeks to "inspire members to render honest, loyal, and more efficient service" to the medical profession and the public.

At the recent convention charters were awarded to groups in Arkansas, California, Colorado, Illinois, Indiana, Iowa, Kansas, Michigan, Missouri, Nevada, Oklahoma, Pennsylvania, South Dakota, Tennessee, Texas, Virginia, and Wisconsin. Assistants from Arizona, Ohio, and Oregon also attended and re-

(Continued on Page 30)

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  Surgery of Hernia, Three Days, April 10
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  Surgical Anatomy & Clinical Surgery, Two Weeks, March 10
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  Hematology, One Week, to be announced
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Evidence continues to accumulate verifying the effectiveness of Gelatine in the treatment of brittle fingernails. Investigators report that the nails show objective evidence of improvement.[1,2,3,4] Furthermore, patients often volunteer that their nails "feel stronger," "look smoother," and "I can pick up things without them hurting."[1] Evidently the subjective sensations associated with improvement are nearly as important to some patients as the positive physical change in the nails' appearance.

Improvement Noted in 81% of Patients

See the chart below for a summary of the effect of Knox Gelatine in brittle fingernails as observed in all published reports. Photographic evidence of improvement, much of it in color taken before and during treatment, is available for most of the patients.[1,2,3] Please note, however, that where Gelatine was used in the treatment of pathological conditions associated with brittle fingernails only in psoriasis did the data show definite improvement.[1,3,4]

Response to Gelatine in Brittle Fingernails

References	Dosage	Duration of treatment	No. patients w/ brittle nails	No. patients improved	No. patients w/ brittle nails and other pathology	No. patients improved
1. Rosenberg, S., Oster, K. A., Kallos, A. and Burroughs, W.: *A.M.A. Arch. Dermat.* 76:330, (September) 1957	7 Gm./day	3 months	**50**	**43** (86%)	**32**[a]	**9**
2. Schwimmer, M. and Mulinos, M.G. *Antibiot. Med. & Clin. Therapy* 4:403, (July) 1957	7.5 Gm./day	11-16 weeks	**18**	**15** (83%)		
3. Rosenberg, S. and Oster, K. A.: *Conn. State Med. J* 19:171, (March) 1955	7 to 21 Gm./day	15 weeks	**36**	**26**[b] (72%)		
4. Tyson, T. L.: *J. Invest. Dermat.* 14:323, (May) 1950	7 Gm./day	13 weeks	**12**	**10**[c] (83%)		
Totals	7-21 Gm.	11-16 weeks	**116**	**94** (81%)	**32**	**9** (28%)

a. Gelatine improved psoriatic nails in 5 out of 12 cases. In onychomycosis and other pathological conditions of the nail it was of no appreciable help.

b. Of the failures, 2 had congenital disease of the nails, 3 were diabetics and 3 took the medication for less than one month.

c. One patient with psoriasis and arthritis and one patient with psoriasiform nail changes showed improvement in 2 and 3 months respectively.

RITTLE FINGERNAILS

Important Note

The pharmacodynamic effects of Gelatine are manifested through its high Specific Dynamic Action, and therefore, depend upon adequate and prolonged intake. All published clinical research has been conducted using 7 to 21 grams (1-3 envelopes) of Knox Gelatine per day for the three to four months that are required for complete regrowth of the nails. Smaller dosage would induce a lesser specific dynamic action and thus prove ineffectual in correcting the brittle nail defects. More detailed information on brittle fingernails and reprints of the two more recent clinical reports are available on request. Please use the attached coupon.

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Please send reprints of the following articles:

☐ Rosenberg, S., Oster, K. A., Kallos, A. and Burroughs, W.: *A.M.A. Arch. Dermat.* 76:330, (Sept.) 1957.

☐ Schwimmer, M. and Mulinos, M.G.: *Antibiot. Med. & Clin. Therapy* 4:403, (July) 1957.

YOUR NAME AND ADDRESS

Medical Assistants Hold 3-Day Convention

(Continued from Page 26)

ported progress toward state groups. To gain American Association of Medical Assistants membership a state group must first obtain approval of the state medical society. The American Medical Association commended the objectives of the assistants group in a resolution passed at its clinical meeting in Seattle last November.

American Association of Medical Assistants members heard talks by physicians, experts in allied fields of medicine, and assistants themselves on ways to improve office skills, discussed ways to develop the national group into an effective postgraduate education body, and elected new officers. Mrs. Mary Kinn, Santa Ana, California, was installed as president, and Mrs. Lucile Swearingen, Bartlesville, Oklahoma, was named president-elect. The 1958 American Association of Medical Assistants convention will be held in Chicago. Mr. Brown introduced a new organizational manual for assistants, "Take-off Techniques," at the session.

—*A.M.A. Secretary's Letter*

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Adult Heart Disease May Have Congenital Basis

Congenital heart disorders may be far more important as a basis of adult heart disease than was formerly recognized, three Washington, D. C., physicians recently stated.

Many congenital malformations of the heart and circulatory system found in adults are now curable by surgery, they said. Therefore, physicians need to be alert to the possibility of adult heart disease resulting from congenital deformities, so that a proper diagnosis—and treatment—can be given to the heart disorder.

Congenital heart disease is usually considered a disorder of infants and children. If an adult, who has had a reasonably healthy childhood, shows sign of heart disease, it is assumed that his is an acquired form, the doctor said in the October 26 *Journal of the American Medical Association*. However, their experience in a small adult cardiac clinic shows that congenital heart disorders may not cause trouble or be noticed until adulthood. During a five-year period they discovered 29 cases of congenital heart disorders in adults.

Although the number of cases is small, it is significant in that the types of congenital defects represented are now, in most instances, curable by cardiovascular surgery.

Their findings emphasize the need for physicians dealing with adult heart patients to be as alert to the possibility of a congenital heart defect as are pediatricians. The radiologist, who can see the shape of the heart and vessels on chest x-rays, is in a "strategic position" for the detection of congenital heart malformations, they said.

The authors are Drs. John B. Johnson, John W. Lawlah, and Leslie E. Hedgepath of the cardiovascular laboratory of the department of medicine, Howard University, and Freedmen's Hospital. Their study was supported by a grant-in-aid from the National Institutes of Health.

Plan to attend the Fourth Annual California Rural Health Conference, January 31 and February 1, Bakersfield. *Contact:* GLENN GILLETTE, Associate Director, Public Relations, California Medical Association, 450 Sutter Street, San Francisco 8.

---

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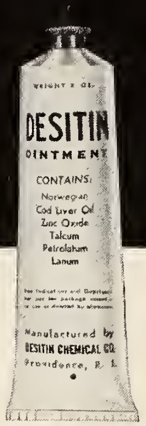
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[1] Grayzel, H. G., and Schapiro, S.: Western J. Surg., Obstet. & Gynec., Oct. 1956.

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(Dextro Propoxyphene and Acetylsalicylic Acid Compound, Lilly)

further intensifies analgesic effectiveness by combining the analgesic action of 'Darvon' with the antipyretic and anti-inflammatory benefits of 'A.S.A. Compound.'* It is particularly useful in relieving pain associated with recurrent or chronic disease, such as neuralgia, neuritis, or arthritis, as well as acute pain of traumatic origin. In a study of 101 patients, Gruber[1] has shown that, even after prolonged administration, no loss of analgesic potency occurs with 'Darvon.' No contraindications have been reported.

Each Pulvule 'Darvon Compound' provides:

'Darvon'	*32 mg.*
Acetophenetidin	*162 mg.*
'A.S.A.' (Acetylsalicylic Acid, Lilly)	*227 mg.*
Caffeine	*32.4 mg.*

Dosage: *'Darvon Compound'—1 or 2 pulvules every six hours as needed for pain.*
'Darvon'—32 mg. every four hours or 65 mg. every six hours as needed for pain.

**'A.S.A. Compound' (Acetylsalicylic Acid and Acetophenetidin Compound, Lilly)*

1. Gruber, C. M., Jr.: J.A.M.A., *164:* 966 (June 29), 1957.

In bottles of 100 at pharmacies everywhere.

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New Tax Ruling on Medical Groups

A new ruling by the Internal Revenue Service may mean that doctors practicing as an association are entitled to the same tax deferment privileges as corporation employees regarding annuities. In the now famous Kintner case, a federal court of appeals ruled that a group of doctors, formerly associated as partners, would be entitled to tax treatment as a corporation after they banded together in an association. Until now, however, the IRS has held that it would not follow the Kintner decision, but would consider a similar association as a partnership, and partners can't be employees under a pension plan. Now IRS is reversing itself; it will not deny the favored tax status to an association of doctors simply because indications are the association was formed to obtain pension plan benefits for members of the association.

If IRS maintains this policy, the effect will be to allow doctors forming an association (in line with IRS criteria yet to be established) to enjoy approximately the same annuity advantages they would under the Jenkins-Keogh and similar bills now pending in Congress. The sponsors would have to meet two tests: the association would have to qualify for the federal tax benefits, while at the same time avoiding the charge, under state law, of engaging in the corporate practice of medicine.

—*A.M.A. Washington Letter*

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and its Psychiatric Day Hospital facility

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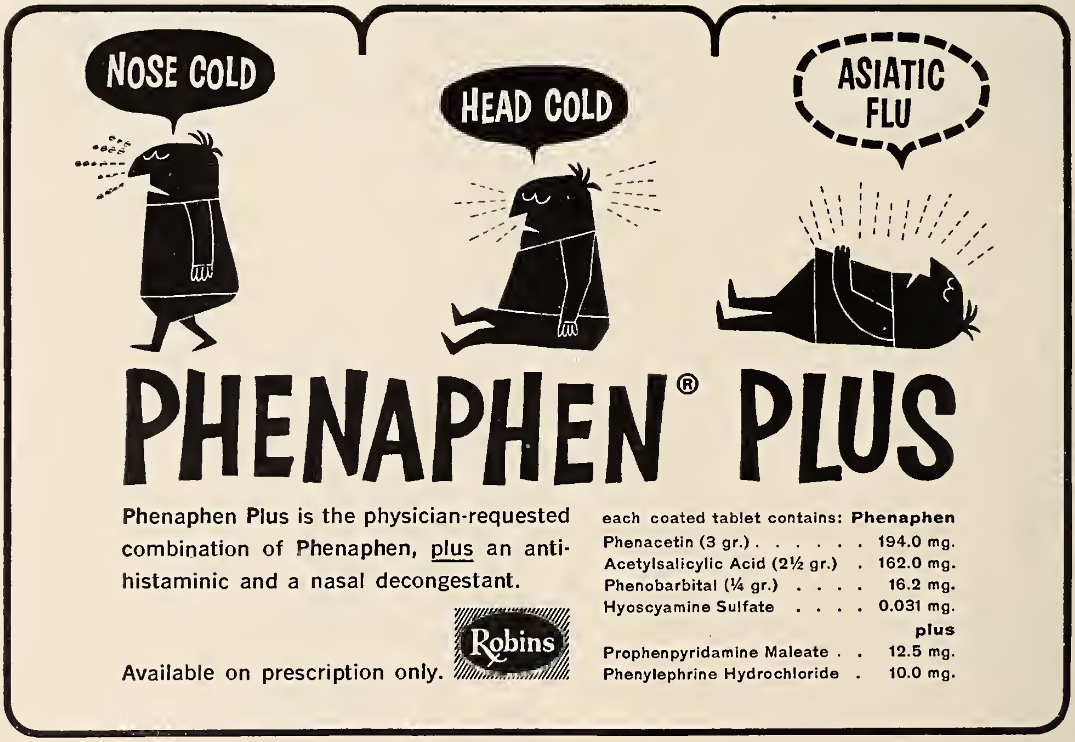
Medical Director

Helen Rislow Burns, M.D.
Assistant Medical Director



PHENAPHEN® PLUS

Phenaphen Plus is the physician-requested combination of Phenaphen, plus an antihistaminic and a nasal decongestant.

Available on prescription only.

each coated tablet contains:	Phenaphen
Phenacetin (3 gr.)	194.0 mg.
Acetylsalicylic Acid (2½ gr.)	162.0 mg.
Phenobarbital (¼ gr.)	16.2 mg.
Hyoscyamine Sulfate	0.031 mg.
	plus
Prophenpyridamine Maleate	12.5 mg.
Phenylephrine Hydrochloride	10.0 mg.

Seven Per Cent of All Hospital Cases Are Accidents

Accidents account for about 7 per cent of all cases treated in American hospitals, according to a new survey by the American Medical Association.

Accidents combined with pregnancy, the "other great nondisease category," account for about one-fourth of the total hospital load. according to an editorial in the October 19 *Journal of the American Medical Association*. Many people believe that all patients are hospitalized for disease, the editorial noted.

The study on accidents, prepared by the American Medical Association Bureau of Medical Economic Research and reported in the October 19 *Journal*, is part of a comprehensive survey of medical services given to the American people. The accident study was based on information about patients discharged from 6,000 general and special hospitals during November, 1955. Tuberculosis and mental hospitals were excluded from the study.

The 128,000 patients hospitalized because of accidents comprised 6.9 per cent of all patients discharged during the month. The average hospital stay for accident patients was 10.7 days as compared with 9.1 days for nonaccident patients. The accident cases required the use of 50,500 beds, or 6.7 per cent of total beds available.

The personnel devoted to the care of accident cases totaled 68,200 or 6.7 per cent of total personnel, and the annual hospital payroll expense was 198 million dollars, or 7.3 per cent of the total payroll.

Depending on the criteria used for the measurements, the bureau concluded that the treatment of accident cases accounts for 7 to 8 per cent (6.7 to 8.1 per cent) of the burden of American hospitals.

Presumably the burden on physicians falls within the same range; however, that will be estimated in another study, the editorial said.

The study also showed the following:

—The 128,000 accident patients spent a total of 1,370,000 days in the hospital, or 8.1 per cent of the total days spent by all patients discharged during the month.

—Of the accident patients, 65.2 per cent were males and 34.8 per cent females. Of the males, 11.3 per cent were under 15 years of age; 35.6 per cent in the 15-44 age group; 13.1 per cent in the 45-64 age group, and 5.2 per cent 65 years and over. Of the females, 5.8 per cent were under 15 years of age; 12.4 per cent in the 15-44 age group; 8.6 per cent in the 45-64 age group, and 8 per cent 65 years and over.

—During the reporting year (ending Sept. 30, 1955 for most hospitals), the care of accident victims cost 311 million dollars, or 7.4 per cent of the total annual expenses of the hospitals. The report noted that the total for 1957 "presumably" involved many more millions of dollars.

when the patient's cold or flu is complicated by bacterial infection

Novahistine®
with penicillin capsules

- **opens clogged air passages**
- **combats secondary bacterial invasion**

Each Novahistine with Penicillin Capsule contains:
Phenylephrine hydrochloride....... 10.0 mg.
Prophenpyridamine maleate....... 12.5 mg.
for the "Novahistine Effect"

Penicillin G Potassium....... 200,000 units
for potent antibiotic action when penicillin-susceptible bacteria are secondary invaders

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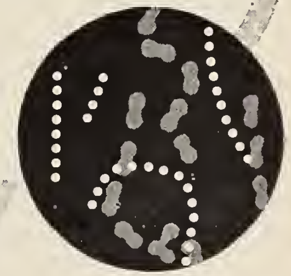

and...in colds complicated by useless, exhausting coughs

Novahistine-DH*

(fortified Novahistine with dihydrocodeinone)

When "head colds" become "chest colds" Novahistine-DH promptly controls coughs and keeps air passages of both head and chest clear of obstruction.

Each teaspoonful (5 cc.) of grape-flavored Novahistine-DH contains:

Phenylephrine hydrochloride	10 mg.
Prophenpyridamine maleate	12.5 mg.
Dihydrocodeinone bitartrate	1.66 mg.
Chloroform (approx.)	13.5 mg.
l-Menthol	1.0 mg.

Supplied in pint and gallon bottles.

*Trademark

PITMAN-MOORE COMPANY
DIVISION OF ALLIED LABORATORIES, INC.
INDIANAPOLIS 6, INDIANA

Soft Shoes Recommended for Toddlers

Soft shoes which give "barefoot freedom" to babies learning to walk were recommended recently in an American Medical Association publication.

The article in the October issue of *Today's Health* pointed out that the baby's first shoes may hold the answer to the kind of foot comfort he will have as an adult. If the baby is given "barefoot freedom," which permits the foot to develop naturally, he will probably have comfortable feet when he grows up.

Because normal foot muscles become strong only through use, only a "supple foot covering that permits the utmost freedom of movement" should be worn by the infant and toddler, the article said. If the baby's foot is confined in a shoe which holds any part of it in conformity, even the heel which is usually supported, the foot will become weak and stiff, according to an orthopedic surgeon quoted in the article.

In addition, stiff shoes may handicap him in learning to walk. The article quoted one mother who said her year-old son took his first steps when she put soft shoes on him. In hard-soled shoes, he "just stood there as if he were wearing skates that might topple him any minute—and they did too, for he could not bend his feet to gain his balance."

Mrs. Mildred C. Martin, an Atherton, Calif., free lance writer, surveyed 175 California doctors on the best type of footwear for babies and toddlers. They agreed that a shoe which permits the foot to grow unhampered is best.

Among their recommendations were the following:

—The shoe should be "foot-shaped," with a straight inner line. It should copy the baby's foot rather than trying to confine the foot into a tiny copy of an adult shoe.

—It should be wide across the toes to permit their spreading and flexing as the child walks. There should be depth for chubby toes, a box-cut preferably, and space beyond the toes. A little child beginning to walk "grips with his toes and rotates on his heels, as he bends and turns." Soft shoes allow him to do this with ease.

—A simple tie or buckle may fasten the shoe on, but no constraining laces should be permitted to interfere with the free flexing of the arch.

—The heel may be snug-fitting, but should have no counters. Through use, the heel and ankle muscles will strengthen naturally.

—The entire shoe preferably should be made of leather, which "breathes through its open pores" and allows essential ventilation.

Mrs. Martin noted that there are children with deformed feet or other deviation who should have corrective shoes. Their problems must be considered individually. For the child with normal feet, cover them for protection against cold or bruising, or for decoration, but let him use his feet.

If
Monilial
overgrowth
is a factor

ACHROSTATIN*V

Tetracycline (phosphate-buffered) and Nystatin

Combines ACHROMYCIN V with NYSTATIN

ACHROSTATIN V combines ACHROMYCIN† V . . . the new rapid-acting oral form of ACHROMYCIN† Tetracycline . . . noted for its outstanding effectiveness against more than 50 different infections . . . and NYSTATIN . . . the antifungal specific. ACHROSTATIN V provides particularly effective therapy for those patients who are prone to monilial overgrowth during a protracted course of antibiotic treatment.

supplied:

ACHROSTATIN V CAPSULES contain 250 mg. tetracycline HCl equivalent (phosphate-buffered) and 250,000 units Nystatin

dosage:

Basic oral dosage (6-7 mg. per lb. body weight per day) in the average adult is 4 capsules of ACHROSTATIN V per day, equivalent to 1 Gm. of ACHROMYCIN V.

*Trademark

†Reg. U. S. Pat. Off.

LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID COMPANY, PEARL RIVER, N. Y.

Blood Dyscrasias Associated with Promazine Hydrochloride Therapy

A review of the reports received by the Registry since July, 1956, revealed 10 cases of blood dyscrasias apparently associated with promazine (Sparine) hydrochloride therapy. A search of the English-language medical literature to the date of the preparation of this statement has uncovered two case reports of granulocytopenia associated with promazine hydrochloride therapy, one of which is among those reported to the Registry. Wyeth Laboratories has been most cooperative and has supplied an additional record of eight cases not previously reported to the Registry, bringing the total to 18 cases in which promazine therapy was suspected as being associated with a case of blood dyscrasia. It should be pointed out that in seven instances the patients received other drugs such as chlorpromazine (Thorazine) hydrochloride. Although all of the cases of blood dyscrasias associated with the use of promazine hydrochloride probably have not been reported, it has been suggested that the rate of incidence of a dyscrasia is relatively low.

Although depression of granulocytes was prominent in every case reported, the bone marrow studies in some cases indicated a depression of other cellular elements as well. Of the 18 known cases, we have information that four ended fatally. In cases that were identified early, cessation of use of the drug and institution of appropriate measures were usually followed by fairly prompt recovery. Physicians who prescribe promazine hydrochloride should instruct attendants, nurses, and patients to discontinue use of the drug and to report immediately if there is any sudden occurrence of symptoms such as sore throat, fever, or malaise. These instructions must be stressed. The interim blood cell counts alone cannot be relied upon because the condition could develop suddenly between routine examinations.

Wyeth Laboratories has included a forceful warning and has placed it prominently in the leaflet available to the medical profession. The firm should be commended for its diligence and willingness to cooperate with the subcommittee in its effort to bring this matter to the attention of physicians. Since the drug may possess potential for some harm, the subcommittee suggests that physicians limit its use to those conditions in which such use is warranted and avoid its use in the treatment of trivial or minor complaints.

—Journal of the American Medical Association October 12, 1957 issue

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Announcing

FOURTH
ANNUAL
CALIFORNIA CONFERENCE
ON
RURAL
HEALTH

January 31 - February 1, 1958

HACIENDA • BAKERSFIELD, CALIFORNIA

Warfarin Nearly Ideal Anticoagulant

A new synthetic drug, Warfarin (Coumadin) sodium, comes closer to being an "ideal" anticoagulant than any other drug now available, two groups of researchers stated.

Anticoagulant drugs are used to prevent death-dealing blood clots in heart attacks and some kinds of circulatory diseases by depressing the blood's ability to clot.

Warfarin has a faster and more-lasting effect and produces fewer harmful side effects than other anticoagulants, the two groups reported in separate articles in the November 16 *Journal of the American Medical Association.*

Warfarin is unique because it is effective when given orally, intravenously, intramuscularly, or rectally, according to Drs. Shepard Shapiro and Flavio E. Ciferri, New York City. Other anticoagulants are effective only when given orally.

The fact that it is effective when given by injection is especially important for those persons who cannot swallow pills because of heavy sedation, shock, nausea and vomiting, or other reasons.

Drs. Shapiro and Ciferri found that a single muscular injection provided an effect that lasted for as long as five days, with the peak effect on the second or third day after injection.

Drs. Rudolph E. Fremont and Benjamin Jagendorf, Brooklyn, New York, gave the drug in tablet form to 85 patients at Brooklyn Veterans Administration Hospital. The patients had suffered heart attacks or blood clots in the vessels.

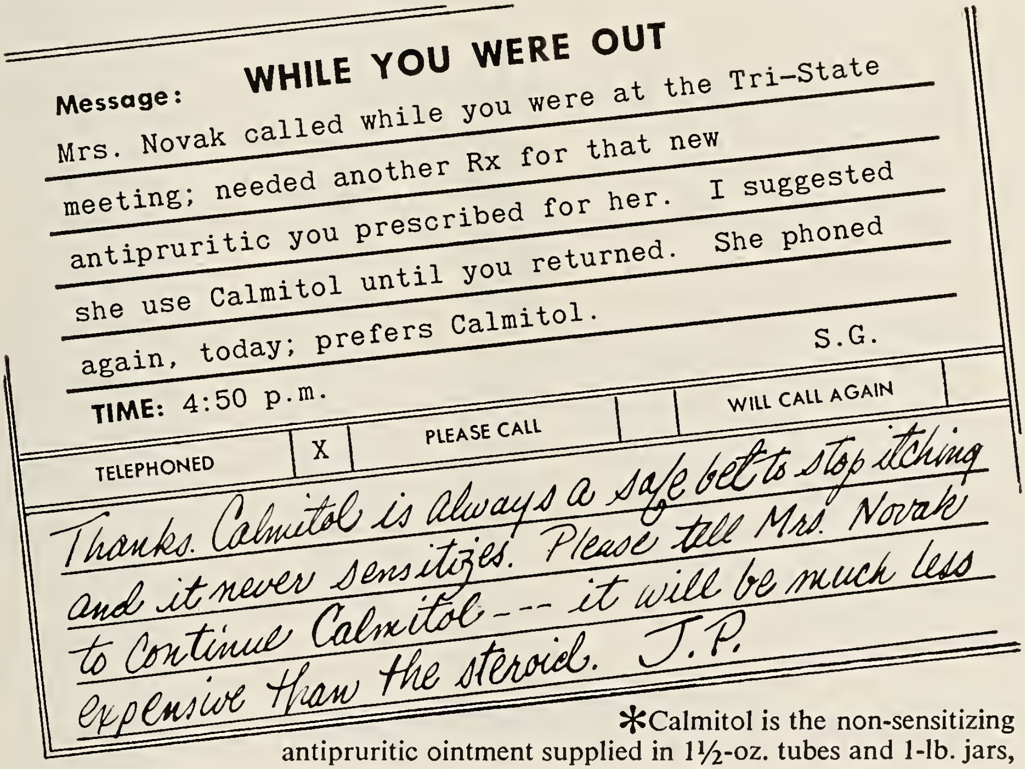
They found that Warfarin produced a fairly prompt reaction in the patients, as well as "relatively well-predictable and consistent" effects for longer periods of time. They found little need to manipulate the dosage after the initial need was established in the patient.

Warfarin rarely caused excessive depression of the ability of the blood to clot, with resultant hemorrhage—one of the problems encountered in some of the other anticoagulants. Excessive depression was quickly counteracted by administration of vitamin K.

The authors also pointed out that Warfarin does not produce any known harmful effects on the body.

Drs. Shapiro and Ciferri are both associated with Lincoln Hospital, New York, and Dr. Shapiro is also on the staffs of Goldwater Memorial Hospital and the New York University College of Medicine.

Make your hotel reservation today for the C.M.A. Annual Session, Los Angeles, April 27-30, 1958. Application for Housing Accommodations may be found on page 100, Advertising Section.



WHILE YOU WERE OUT

Message:

Mrs. Novak called while you were at the Tri-State
meeting; needed another Rx for that new
antipruritic you prescribed for her. I suggested
she use Calmitol until you returned. She phoned
again, today; prefers Calmitol.

S.G.

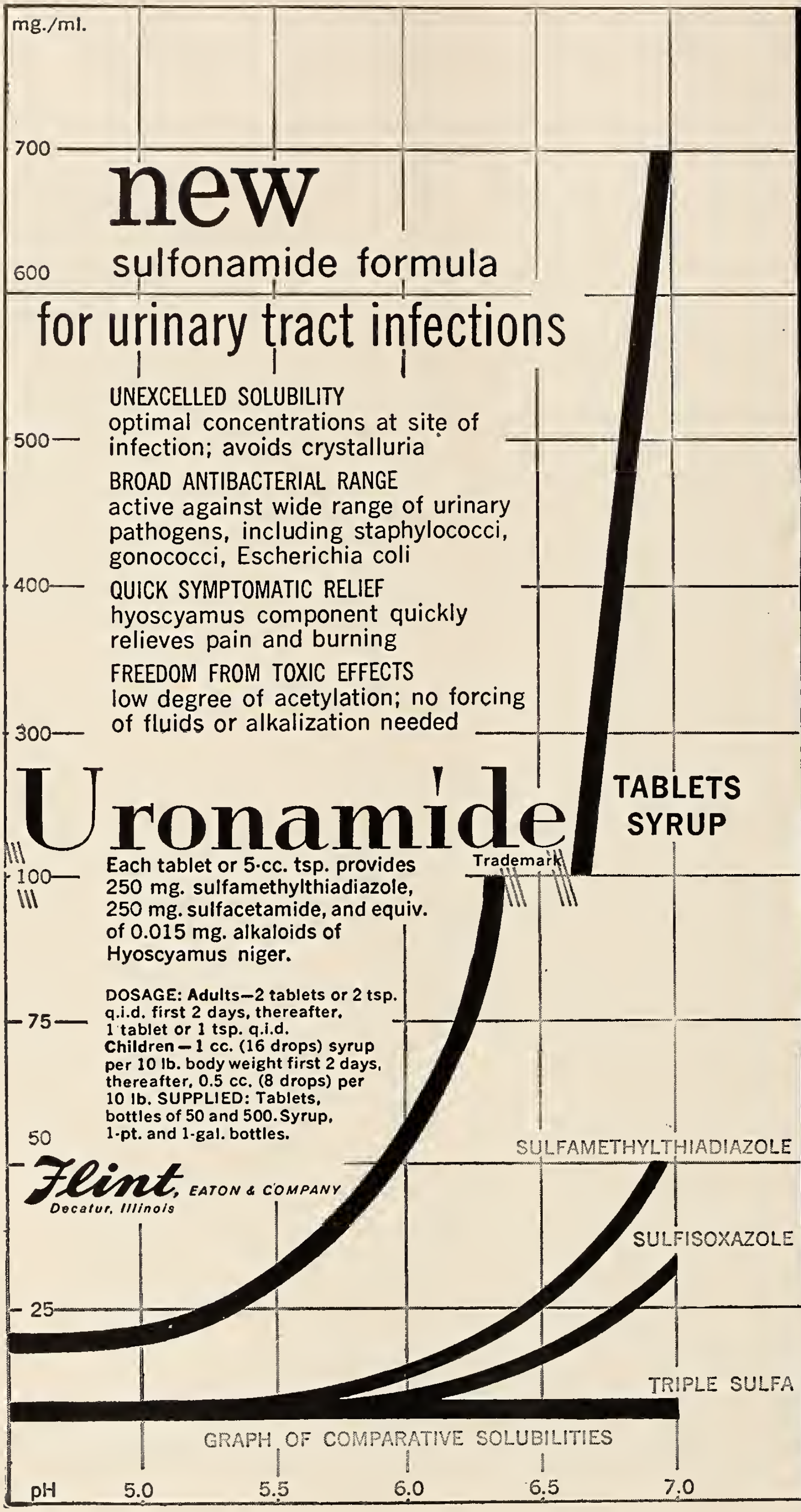
TIME: 4:50 p.m.

TELEPHONED	X	PLEASE CALL		WILL CALL AGAIN	

Thanks. Calmitol is always a safe bet to stop itching
and it never sensitizes. Please tell Mrs. Novak
to Continue Calmitol --- it will be much less
expensive than the steroid. J.P.

*Calmitol is the non-sensitizing antipruritic ointment supplied in 1½-oz. tubes and 1-lb. jars, and (liquid) 2-oz. bottles by THOS. LEEMING & CO., INC., New York 17.

Each ounce contains: Hyoscyamine oleate (equivalent to 0.028 mg. hyoscyamine alkaloid), 0.055 mg.; Alcohol, 1.4 cc.; Camphor, 0.16 Gm.; Ether, 0.5 cc.; Chloroform, 0.19 cc.; Chloral hydrate, 0.13 Gm.; Menthol, 0.17 Gm.; in a suitable ointment base.



GRAPH OF COMPARATIVE SOLUBILITIES

new

sulfonamide formula

for urinary tract infections

UNEXCELLED SOLUBILITY
optimal concentrations at site of infection; avoids crystalluria

BROAD ANTIBACTERIAL RANGE
active against wide range of urinary pathogens, including staphylococci, gonococci, Escherichia coli

QUICK SYMPTOMATIC RELIEF
hyoscyamus component quickly relieves pain and burning

FREEDOM FROM TOXIC EFFECTS
low degree of acetylation; no forcing of fluids or alkalization needed

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TABLETS
SYRUP

Each tablet or 5-cc. tsp. provides 250 mg. sulfamethylthiadiazole, 250 mg. sulfacetamide, and equiv. of 0.015 mg. alkaloids of Hyoscyamus niger.

DOSAGE: Adults—2 tablets or 2 tsp. q.i.d. first 2 days, thereafter, 1 tablet or 1 tsp. q.i.d. Children—1 cc. (16 drops) syrup per 10 lb. body weight first 2 days, thereafter, 0.5 cc. (8 drops) per 10 lb. SUPPLIED: Tablets, bottles of 50 and 500. Syrup, 1-pt. and 1-gal. bottles.

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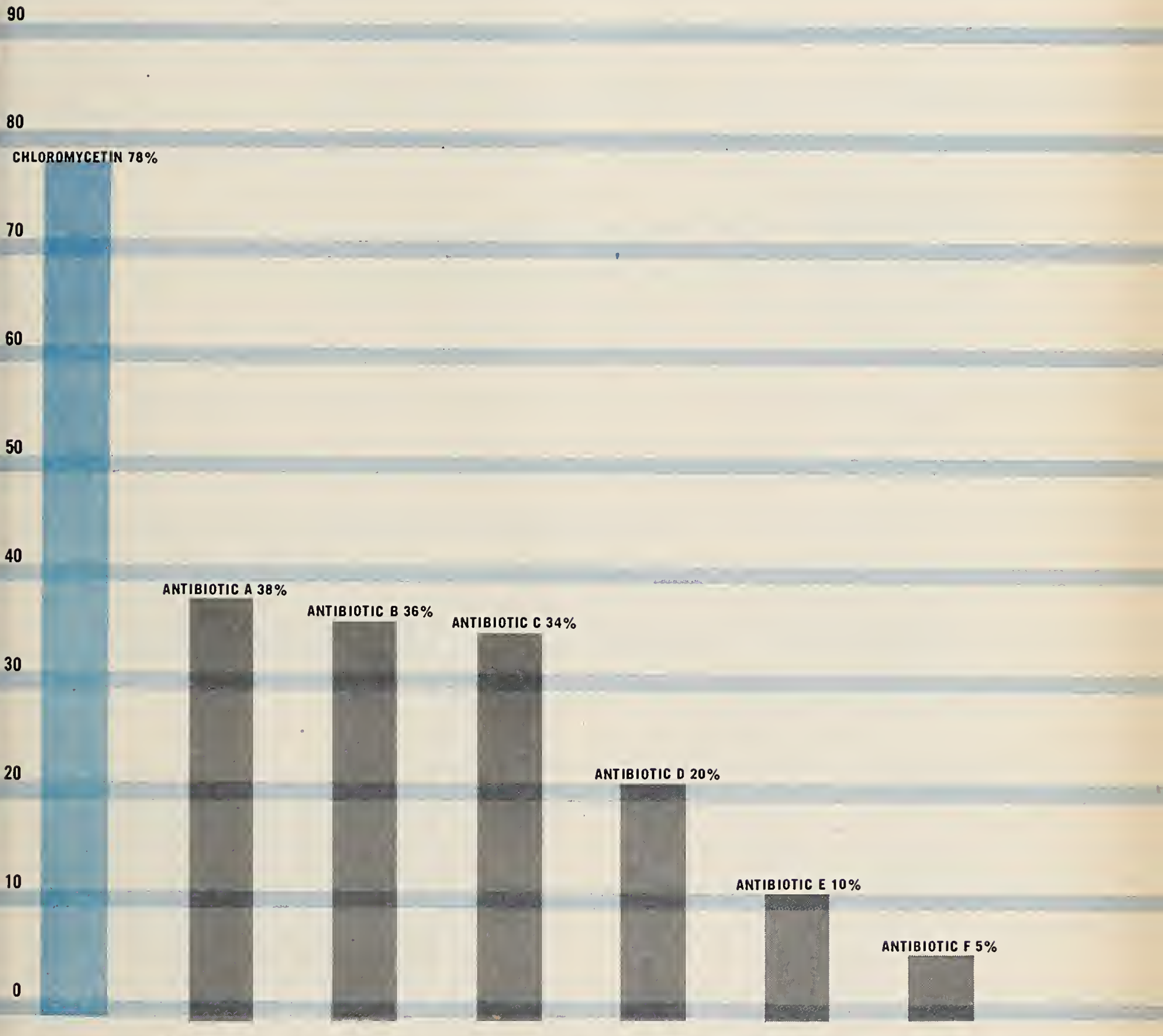
"Sulfamethylthiadiazole . . . effective chemotherapeutic agent in urinary infection...tolerated quite well . . . bacterial spectrum is comparable to that of sulfadimetine and sulfisoxazole."[1]

"[Sulfacetamide]...among the least toxic but one of the most effective of the sulfonamides against urinary tract pathogens."[2]

1. Hughes, J., et al.: South. M.J. 47:1082, 1954.
2. Kerley, L., and Headlee, C. P.: J. Am. Pharm. A. (Scient. Ed.) 48:82, 1956

COMPARATIVE SENSITIVITY OF MIXED PROTEUS SPECIES TO CHLOROMYCETIN AND SIX OTHER WIDELY USED ANTIBIOTIC AGENTS*



*This graph is adapted from Waisbren and Strelitzer.[15] It represents *in vitro* data obtained with clinical material isolated between the years 1951 and 1956. Inhibitory concentrations, ranging from 3 to 25 mcg. per ml., were selected on the basis of usual clinical sensitivity.

Fear Called Chief Deterrent To Heart Disease Recovery

Eliminating the patient's fear is the biggest problem faced by a general practitioner trying to help a heart disease victim recover, according to a report in the October 19 issue of the *Journal of the American Medical Association.*

The article, by Drs. Bryan Williams, Dallas; Paul D. White, Boston; Howard A. Rusk, New York City, and Phillip R. Lee, Palo Alto, Calif., shows the results of a survey among 40 members of the American Academy of General Practice from widely scattered areas of the United States.

The survey is part of a nationwide study of rehabilitation of heart disease patients. It was aided by a grant from the U. S. Public Health Service.

The solution to the problem of eliminating fear and misinformation about heart disease among patients and their families lies in education, the doctors thought. The physician, the patient, and the family should know about the more optimistic aspects of heart disease, the report said.

After the medical needs have been met, the doctors thought an unhurried explanation of the heart patient's illness is the most important step in returning such patients to an active and useful life.

The general practitioner believed that the second biggest problem they face in treating heart disease

(Continued in Back Advertising Section Page 72)

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AMERICAN CYANAMID COMPANY
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many patients with MILD involvement can be effectively controlled with

'MEPROLONE'

many patients with MODERATELY SEVERE involvement can be effectively controlled with

'MEPROLONE'

NEW

and NOW for patients with SEVERE involvement

MULTIPLE COMPRESSED TABLETS

'MEPROLONE'

The first meprobamate-prednisolone therapy

the one antirheumatic, antiarthritic that simultaneously relieves: (1) muscle spasm (2) joint inflammation (3) anxiety and tension (4) discomfort and disability.

SUPPLIED: Multiple Compressed Tablets in three formulas: 'MEPROLONE'-5—5.0 mg. prednisolone, 400 mg. meprobamate and 200 mg. dried aluminum hydroxide gel. 'MEPROLONE'-2—2.0 mg. prednisolone, 200 mg. meprobamate and 200 mg. dried aluminum hydroxide gel. 'MEPROLONE'-1 supplies 1.0 mg. prednisolone in the same formula as 'MEPROLONE'-2.

MSD MERCK SHARP & DOHME
DIVISION OF MERCK & CO., INC.
PHILADELPHIA 1, PA.

'MEPROLONE' is a trademark of Merck & Co., Inc.

CLASSIFIED ADVERTISEMENTS

(Continued from Page 24)

PHYSICIANS WANTED *(Continued)*

STAFF PHYSICIAN FOR CALIFORNIA, approved accredited bicounty hospital, pulmonary diseases (219 beds), rehabilitation chronic illness (30 beds). Starting salary $600 monthly, includes furnished modern home for family. Must be eligible California licensure. Write: Medical Director, Tulare-Kings Counties Hospital, Springville, Calif.

SITUATIONS WANTED

WE HAVE IMMEDIATELY AVAILABLE for your staff—GENERAL PRACTITIONERS and SPECIALISTS, as well as EXPERIENCED MEDICAL SECRETARIES and RECEPTIONISTS, REGISTERED NURSES, LABORATORY and X-RAY TECHNICIANS. Norma Rohl, Director, THE MEDICAL CENTER AGENCY, FLOOD BUILDING, SUITE 412-414, 870 MARKET STREET, San Francisco 2. CALL YUkon 2-3412.

GENERAL PRACTITIONER—Main interest surgery. Age 45. 20 years practice Middle West. Desires relocation in California. Association or purchase of active practice. California licensed. Box 92,125, California Medicine.

GENERAL SURGEON, 38, certified American Board of Surgery, F.A.C.S. At present Chief of Surgery, Government Hospital. Well qualified in General Surgery, including Urology and traumatic Orthopedics. Previous group practice in California. Desires to associate with another qualified surgeon, or a clinic. Permanency desired. Available in January, 1958. Box 93,680, California Medicine.

INTERNIST, 36, BOARD CERTIFIED, medical-school clinical instructor, now in private practice in East, desires association or group. Reply Box 93,745, California Medicine.

INTERNIST-GASTROENTEROLOGIST — Private practice experience, qualified in Endoscopy and Roentgenology, seeking association or group practice. Available January. Box 93,775, California Medicine.

OPHTHALMOLOGIST, age 33, Board eligible, military completed. Good surgical training. Seeks association with board man, group or clinic. Box 93,760, California Medicine.

RESIDENT IN OPHTHALMOLOGY at Cook County Hospital in Chicago will have completed his training by January of 1958, and wishes to do part time ophthalmology in the San Francisco Bay Area. Please write to Robert Singer, 737 South Keeler Avenue, Chicago 24, Illinois.

RADIOLOGIST—University of Iowa trained. Certified in 1955, plus two years' experience, age 41, excellent references, prefer group or hospital association. Available 30 days. California licensed. Box 93,790, California Medicine.

EXPERIENCED MEDICAL SECRETARY desires work as secretary, or as companion to children, or middle-aged lady, in return for foreign or even world travel. Patient and companionable. College graduate. Age: mid-thirties. Administrative experience. Box 93,770, California Medicine. Telephone GL 1-0247, evenings or week-ends.

OBSTETRICIAN AND GYNECOLOGIST; Military obligation completed. Board eligible. Age 38, married. Have California license. Desire association with Obstetrician, or group, or General Practitioner, in or near Bay Area. No objection to some general practice work. Telephone: Berkeley, THornwall 8-6459, or write Box 93,755, California Medicine.

RESIDENTS WANTED

ANESTHESIOLOGY RESIDENCY—One position open now, another available January 1, 1958, for two year fully approved program in 500-bed charity hospital. $260.00 monthly. Write: Medical Director, Santa Clara County Hospital, San Jose, California.

LOCUM TENENS WANTED

PHYSICIAN WANTED FOR LOCUM TENENS approximately May 1, to September 1, 1958, for active general practice in a community 50 miles north of San Francisco. Will require full time. Please apply with full particulars and expectations. Box 93,720, California Medicine.

(Continued in Back Advertising Section Page 78)

Council Now Screening Foreign Medical Graduates

After nearly three years of planning, the Educational Council for Foreign Medical Graduates has placed an "open for business" sign on the door of its offices in Evanston, Illinois.

The council, which will carry out a detailed and comprehensive program for evaluating foreign medical school graduates, has offices in the Orrington hotel in Evanston. The executive director is Dr. Dean F. Smiley, Chicago, former secretary of the Association of American Medical Colleges.

It was decided three years ago that some form of evaluation service should be established within an independent agency whose affairs would be directed by a board of trustees designated by four cooperating organizations, the American Medical Association, the Association of American Medical Colleges, the American Hospital Association, and the Federation of State Medical Boards of the United States. For the next two years, the council will be supported by the four sponsoring agencies, the Kellogg Foundation, and the Rockefeller Foundation.

The council, incorporated in the State of Illinois, will be administered by a 10-member board of trustees—two representatives from each of the four sponsoring agencies and two persons representing the public at large, one named by the U. S. Department of Defense and the other by the U. S. Department of Health, Education and Welfare.

The president of the board is Dr. J. Murray Kinsman, dean of the University of Louisville School of Medicine.

Here Is How Council Functions: Dr. Smiley said the council will distribute to foreign medical graduates around the world authentic information regarding the opportunities and difficulties involved in coming to the U. S. on an exchange student visa to take intern or resident training in a U. S. hospital, or coming on an immigrant visa with the hope of becoming licensed to practice.

The council will make available to properly qualified foreign medical graduates, while still in their own country, all information on how to obtain certification. This involves a three-way screening process:

1. The council will certify that a student's educational credentials have been checked and found meeting minimal standards—18 years of formal education, including at least four years in a bona fide medical school, but excluding hospital training.

2. The council will certify that the command of English has been tested and found adequate for assuming an internship in an American hospital.

3. The council will certify that the general knowledge of medicine, as evidenced by passing of the

(Continued in Back Advertising Section Page 68)

California
MEDICINE
OFFICIAL JOURNAL OF THE CALIFORNIA MEDICAL ASSOCIATION
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Volume 87 DECEMBER 1957 Number 6

Diagnosis of Hemorrhagic Diseases

Evaluation of Procedures

L. W. DIGGS, *M.D.*, Memphis, Tennessee

• Careful and complete history and physical examination are essential in the diagnosis of diseases characterized by hemorrhage and are more reliable than laboratory tests for the prediction of the tendency to bleed at the time of surgical operation. Specific questions should be asked about bleeding from various anatomical sites, allergic manifestations, diet, and exposure to poisons and chemical substances. Because hemorrhagic diseases may be hereditary, it is necessary to obtain a family history. If there is a personal or family history of abnormal bleeding, the examiner should obtain exact details about the events immediately preceding the bleeding episodes, the character and duration of the hemorrhage and the response to therapy.

The history is particularly important in the case of patients who are to have operation. Failure to obtain a history of past bleeding episodes may be catastrophic. In patients with bleeding tendencies who require operation, the history is valuable in predicting the severity of the bleeding.

Physical examination including examination of retina, breast and pelvic organs will often detect evidence of lesions that are helpful in the diagnosis of the primary diseases of which the hemorrhage is a manifestation. The location, distribution, character and number of hemorrhagic lesions are of value in diagnosis and in prognosis.

PART I

History, Physical Examination

WHEN A PATIENT seeks medical care because of ecchymoses, petechiae, spontaneous bleeding from mucous surfaces or abnormal bleeding following trauma, the procedure to be followed is the same as it would be for any other patient. Hemorrhagic phenomena are manifestations of disease of varied etiologic factors. The primary disease may involve any organ of the body or the body as a whole. It is therefore necessary to utilize all of the diagnostic tools, including history, physical examination and screening laboratory procedures as well as special tests. It is the purpose of this paper to discuss the role that the history and the physical examination play in the diagnosis of diseases characterized by hemorrhage.

HISTORY

The "present illness" of a patient with hemorrhagic phenomena should start at the time of birth, since diseases characterized by abnormal bleeding may be hereditary and since the defect is likely to become manifest in infancy or in early childhood. All persons are continually subjected to tests of trauma and often react in characteristic ways to injuries. Persons in normal environments bump into objects, are cut, scratched, bitten and spanked. Sneezing, coughing, vomiting, defecation, shaving, cleaning the teeth, menstruation, the wearing of tight clothing and assumption of the upright posi-

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Guest Speaker's Address: Presented before the Section on Pathology and Bacteriology at the 86th Annual Session of the California Medical Association, Los Angeles, April 30 to May 1, 1957.

Part I of a two-part article.

tion produce stresses on the vascular system. Inquiry should be made concerning accidents, surgical operations, extraction of teeth and childbirth. If a patient is one or more years of age and his system review reveals no tendency to bruise easily and no abnormality in hemostasis following trauma, and particularly if there has been no abnormal bleeding following cuts, fractures or the extraction of teeth, one is safe in assuming that hereditary hemorrhagic disease does not exist.

Many people who bruise easily or who bleed abnormally have a history of allergic sensitivity; hence, it is important to ask specific questions about eczema, urticaria, erythema, hay fever, asthma and sensitivity to foods and drugs.

The history should also include inquiry about exposure to chemicals, sprays, insecticides, cleaning solutions and solvents in the home and at work. A list should be made of all drugs taken by mouth or parenterally. If the patient has been taking medicines, the timing of the hemorrhagic state in relation to the taking of a given drug is important. Many patients do not consider that a given substance is a drug unless it is prescribed by a physician. It is therefore necessary to ask about sleeping pills, hair rinsing fluids, cosmetics and deodorants, contraceptives, douches, powders, salves, lotions, headache remedies, cathartics, mouthwashes, gargles and hair dyes.

The history should also include questions concerning the diet. A deficiency in vitamin C may be the cause of scurvy which is characterized by gum bleeding, ecchymosis and subperiosteal hemorrhage. Deficiencies in protein, calcium, iron and vitamins are seldom the primary cause of bleeding, but often are factors in exaggeration of the hemorrhagic state.

It is important to inquire carefully about events preceding the last hemorrhagic episode and particularly to inquire about "colds," "sore throat" and "fever." Patients with thrombocytopenic purpura often give a history of infection of the respiratory tract, exanthema or other febrile diseases occurring one or two weeks preceding the onset of hemorrhagic phenomena.

It is particularly important to obtain a past and present history of hemorrhagic phenomena in patients admitted to surgical services. Failure to obtain a careful history may lead to serious consequences as exemplified by the following cases.

CASE 1. A boy was admitted with a large fluctuant hematoma of the thigh, which appeared following a minor fall. No inquiry was made concerning his past history. The hematoma was lanced and drained, following which there was massive bleeding, which could not be readily controlled and which necessitated multiple transfusions. The history obtained later revealed that the patient previously had had many similar extravasations of blood into the soft tissues, that he had several ankylosed joints, that he bled severely following minor cuts and that he had siblings who were "easy bleeders."

CASE 2. A young man was admitted to the neurosurgery service because of head injury received in an automobile accident. At the time the patient was admitted he was mentally clear and all vital signs were normal. Several hours later he lapsed into coma and died. The family later volunteered the information that the patient had always bled easily following trauma and that he had been diagnosed as having "hemophilia." If the history of previous bleeding had been obtained from the patient and if transfusions had been instituted at the time of admission, the catastrophe might have been averted.

Patients with defects in coagulation mechanisms develop conditions requiring surgical procedures as do patients with normal hemostatic and coagulation mechanisms. In such persons the history is of great value in predicting the degree of difficulty to be expected and the calculated risk that the patient must assume. For example:

CASE 3. A patient with capillary purpura due to hereditary capillary fragility (pseudohemophilia) bled excessively at each menstrual period. In spite of the excessive blood loss, the patient had not become anemic, she had borne two children without requiring transfusions and had had several teeth extracted with some difficulty in hemostasis, but with no massive bleeding. The bleeding time was only slightly prolonged. In view of the history of minor bleeding following trauma, it was the opinion of the consultant that hysterectomy could be performed with reasonable safety. There was only moderate difficulty in hemostasis at the time of operation and no postoperative bleeding.

CASE 4. A patient with massive ecchymoses of legs and arms, thought to be due to sensitivity to drugs, did not bleed abnormally at the time of biopsy of a cervical lymph node. On the basis of this history and in spite of the positive physical signs, it was recommended that indicated pulmonary operation was possible. Lobectomy was accomplished without unusual loss of blood.

CASE 5. A patient with meningioma gave a history of extravasations of blood into muscles, causing disability and severe bleeding following trauma, and necessitating transfusions. The patient assumed the grave risk of hemorrhage rather than choosing to die of brain tumor. The operation could not be completed, for the bleeding was so excessive at the incision line that the skull flap could not be exposed.

If the patient gives a history of bleeding, the physician should obtain details about the timing of the hemorrhage in relation to the trauma, severity of the hemorrhage and the duration and response to therapy. Patients tend to overemphasize bleeding and many patients think that they are "easy bleeders" when they are not. Occasional epistaxis and bruises are to be expected in every normal person. Bleeding is of a serious nature when it causes the patient to seek medical aid, to receive transfusions or to be admitted to the hospital. Bleeding following extraction of teeth is probably significant if the bleeding continues through the second and third day. Difficulty in hemostasis at the time of tonsillectomy is more significant than hemorrhage one week after the operation. Bleeding from gums following cleaning of teeth is significant if there are clots, blood on the pillow or hematemesis.

FAMILY HISTORY

The family history is essential in hemorrhagic diseases because there are many kinds of abnormality that are genetically determined. The simplest way to record the results of a family survey is by means of a genetic diagram with symbols to represent the type of abnormality noted in siblings, children, parents, grandparents, uncles and aunts.

The physician should not be content when a patient recalls that a given member of the family was a bleeder, but should obtain as much detailed information as possible concerning the nature of the bleeding. Without such information, erroneous conclusions could be drawn. Thus, Uncle Charlie bled to death, but his arm was cut off in a sawmill accident. Aunt Susie died at the time of labor from blood loss, but she had previously given birth to six children without difficulty. The cause of her death was placenta previa and afibrinogenemia.

The absence of history of known bleeders in a family does not exclude the possibility of hereditary disease, for the abnormality may not be expressed for several generations or may be so mild as to go unnoticed. Many patients do not have enough siblings or relatives to permit an hereditary trait to become manifest.

PHYSICAL EXAMINATION

The physical examination often reveals abnormalities that are of value in the diagnosis of hemorrhagic diseases. Ophthalmoscopic examination may reveal petechiae, which are helpful in the diagnosis of subacute bacterial endocarditis in a patient in whom the major signs may be intestinal bleeding. Retinal tubercles may aid in the establishment of the diagnosis of miliary tuberculosis that may be the cause of pancytopenia and thrombocytopenic purpura. Retinal hemorrhage, together with the finding of ecchymosis of the thigh and a positive reaction to a tourniquet test and a slightly prolonged bleeding time, may be of great value in the differential diagnosis of retinal thrombosis and systemic hemorrhagic disease. Telangiectatic lesions of the skin, nailbeds, lips or mucous membranes may be the key to unexplained bleeding from the nose. lungs, gastrointestinal or urinary tracts. Spider nevi suggest liver disease. A smooth tongue and loss of vibration sense may be a clue to the diagnosis of pernicious anemia, which is sometimes characterized by bleeding.

Examination of a breast may reveal a small carcinoma which in its metastatic spread may cause thrombocytopenia and uterine hemorrhage.

Jaundice is a warning signal and is an indication for withholding surgical operation until prothrombin activity and other tests have been evaluated.

Careful physical examination should always be done before surgical operation. Petechiae, ecchymosis, gingival bleeding and appearance of blood in the nares are warning signals. Nurses, aides and technologists should be alerted and instructed to call the attention of the physician to any sign of blood in sputum, vomitus or feces. Abnormal bleeding from the skin following hypodermic injections or needle puncture wounds, or recurrence of bleeding after preliminary cessation of bleeding may be of major significance, particularly if the patient has been admitted for surgical treatment.

The location and the distribution of the hemorrhagic lesions are of diagnostic importance. In senile purpura the ecchymoses are usually over the backs of the hands and over the shins and the tops of the feet. In capillary purpura due to allergic sensitivity (Schönlein-Henoch type, nonthrombocytopenic purpura), the petechiae are most prominent over the pressure points, such as the backs of the elbows, the buttocks and the knees. In this disease the hemorrhagic phenomena are often associated with swollen, tender and painful joints and sometimes with hematuria and melena. Petechiae due to thrombocytopenic purpura are most likely to occur over the lower legs and arms and in the mucous membranes. In fat emboli the fine, brownish petechiae are likely to be prominent over lateral chest wall and axilla. In erythema multiforme exudativum (Stevens-Johnson syndrome) the hemorrhagic lesions may be limited to the mouth and mucous membranes.

Petechiae limited to the face, neck and shoulders suggest vascular disease due to increased venous pressure such as occlusion of the superior vena cava or stasis of blood in the head due to breathholding or severe coughing. Hemorrhagic lesions of the abdomen, legs or arms may be due to tightly fitting or elastic garments.

Massive extravasation of blood with stocking and glove patterns of the extremities are characteristic of purpura fulminans. These are probably a severe form of allergic purpura in which there is vascular disease with occlusion of major blood vessels. In many of the severe infections there may be petechiae all over the body due to hemorrhagic emboli as is seen in meningococcic septicemia. The rose spots of typhoid fever, the hemorrhagic extravasations in rickettsial disease and the hemorrhagic rashes seen in some patients with exanthematous diseases are examples of hemorrhagic phenomena which are manifestations of lesions in the vascular bed leading to the escape of erythrocytes.

The presence of hemorrhagic lesions that are atypical and are difficult to correlate with any clinical pattern should make one consider self-inflicted lesions (purpura factitia). A narcotic addict in order to obtain morphine complained of severe kidney colic and added blood to her urine and induced bleeding by needle puncture wounds in the skin in order to make the claims of hemorrhage more impressive. A patient desiring attention and sympathy took Dicumarol in order to produce hematuria and other hemorrhagic phenomena. Hemorrhagic lesions are most commonly inflicted on accessible areas, such as the forearms and thighs and are not present on the posterior surfaces which are more difficult to reach. The examiner should always closely inspect hemorrhagic lesions for tooth and fingernail marks and for puncture wounds in the center of them in order to make sure they are not self-inflicted.

Morphological characteristics of the skin lesions may be of value in diagnosis. Multiple petechiae which are of pinhead size are suggestive of thrombocytopenia or systemic vascular disease. Larger ecchymoses without petechiae suggest defect in the coagulation components. Hemorrhages into the muscles, joints or deep extravasations of blood along fascial planes suggest defects in plasma components such as occur in hemophilia, fibrinogenopenia and diseases caused by an increase in anticoagulants.

Large bruises of the superficial skin, particularly of the thighs and the upper arms following minor trauma, without associated bleeding into the muscles and joints and without abnormal bleeding in the mucous surfaces, are suggestive of purpura simplex or of "easy bruisability." Usually, the laboratory tests are negative in these patients with the possible exception of positive reaction to a tourniquet test and slightly prolonged bleeding time.

Many apparent hemorrhagic abnormalities are due to thrombotic phenomena. Skin lesions due to thrombi are likely to have a relatively pale center, surrounded by an area of ecchymosis, whereas a hemorrhage is likely to be most pronounced at the point of vascular rupture, with a fading out of extravasation peripherally. Hemorrhagic lesions on allergic basis are often elevated and may itch. Itching hemorrhagic lesions with linear petechiae along with scratch marks are evidences of allergic cause.

The age of the patient is important in determining the nature of the hemorrhagic lesions. In infants with hemophilia or hypoprothrombinemia, the superficial hemorrhages into the skin, which has excellent elastic tissue, may remain in tightly compartmentalized areas, producing nodules that resemble tumors. In older patients similar hemorrhages spread rapidly into the subcutaneous tissues and produce large, flat ecchymoses such as are seen in senile purpura.

Bleeding from more than one site is always of greater significance than hemorrhagic phenomena from a single area. Thus, an obstetrical patient who is in labor and is bleeding severely from the uterus is likely to have fibrinogenopenia if there is at the same time bleeding from the gums and extravasations of blood at the site of needle puncture wounds. A patient with bleeding from the uterus only, with no other signs of abnormality as revealed by physical examination and screening hemorrhagic studies, probably has a local lesion, rather than systemic disease.

The history and physical examination together with screening laboratory tests such as hematocrit and examination of a specimen of blood, including thrombocyte evaluation, are more reliable in predicting the tendency to bleed at the time of operation than are the bleeding time and coagulation time. If the patient who is scheduled for operation or for biopsy is bleeding from any site, or if there are symptoms or signs of abnormality in vascular or plasma coagulation components, preoperative hemorrhagic studies are indicated. On the other hand, routine preoperative hemorrhagic studies are not indicated in the case of patients who are not bleeding at the time, or who have a personal and family history negative for abnormal bleeding and no signs of abnormality at the time of physical examination.

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This concludes Part I of an article in two parts. Part II will be published next month.

Management of Varicose Veins During Pregnancy

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• The incidence of recurrences after radical venous operations done during pregnancy or where pregnancy has occurred subsequently is much higher than it is in cases in which pregnancy is not a factor. These discouraging results are due to increased venous pressure, obstruction to the venous drainage of the lower extremities and hormonal factors. The management of varicose veins during pregnancy should be by conservative means consisting of proper elastic support, elevation of the extremities at night and during rest periods in the day, avoiding static dependency of the legs, and control of body weight. In event of venous stasis and severe symptoms of varicosis that cannot be controlled by conservative measures, limited surgical intervention is indicated. This should consist of high ligation and division of the involved venous trunk and the immediate tributaries. Radical extirpation of varicose veins should be reserved until further pregnancy is not contemplated.

RECENTLY a number of investigators have advocated definitive therapy for varicose veins during pregnancy. Some of them have recommended radical surgical operation,[7,9,12] others sclerotherapy[1,5,8] or a combination of these two methods.[2] There is no longer any doubt that extensive operation on veins is reasonably safe during pregnancy, but to recommend that it be done routinely for varicosities in pregnant women would seem to disregard the fact that the aggravating factor in bringing about the varicose condition is not removed. Many of the proponents of sclerotherapy are enthusiastic about the method, and in some cases carry their therapy to the eighth month.[9] However, one must bear in mind that the use of sclerosing agents in an intact saphenous trunk entails the hazard of uncontrolled ascending thrombophlebitis. Advocates of each of these forms of therapy have cited good immediate results. In studies that we made of results some time after such treatment, however, no justification was found for enthusiasm for any form of definitive treatment during pregnancy.

In a previous report[4] on a series of 71 patients (in whom pregnancy was not a factor) treated by radical varicose phlebectomy, a recurrence rate of 4.5 per cent after 18 months or longer was noted. By contrast, varicosities recurred in five of seven patients who were operated on during pregnancy or in whom pregnancy was a factor later (Table 1). Weismann[12] in reporting on a series of 23 patients with varicose veins in pregnancy noted that 14 had had previous therapy for the condition, including radical operations in two cases.

In many cases recurrence is directly attributable to factors other than the congenital absence or deficiency of venous valves[6,10] usually noted in simple varicosis. The increase in total volume of blood and the local increase in volume in the pelvic veins due to uterine growth and increasing arteriovenous fistulae in the placenta[11] must be considered. Varying degrees of obstruction to venous drainage from the lower extremities may be caused by pressure attributable to the position and size of the uterus, length and mobility of the supporting ligaments, size of the pelvis or tone of the abdominal muscles. Early in pregnancy, even before the placenta is formed and before the uterus is large enough to cause pressure, varicosities may appear in large numbers. This is probably the effect of hormonal changes.

By direct measurement[11] of popliteal vein pressure in pregnant women it was found that, in patients who had edema or varicose veins or both, an increase in pressure consistent with obstruction developed on exercise. In patients without edema or varicosities, the change in pressure between resting and exercising was within normal limits. In the case of a patient who had edema and varicose veins in one leg and none in the other leg, the pressure studies indicated obstruction on the affected side only. The obstructive factor is of paramount im-

TABLE 1.—*Results of Radical Varicose Phlebectomy*

Cases	Patients	Limbs	Good Result Number	Good Result Per Cent	Unsatisfactory Number	Unsatisfactory Per Cent
Pregnancy *not* a factor	71	110	105	95.5	5	4.5
Concomitant or subsequent pregnancy	7	11	3	28	8	72

Presented before the Section on Obstetrics & Gynecology at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

portance in the etiology of unusual kinds of varices observed in pregnancy, such as gluteal and vulvar varicose veins. Such varices indicate communications between superficial veins and the deep pelvic system and are most likely to disappear completely in the postpartum period. Furthermore, varicosities whose main origin is in the gluteal and pudendal tributaries of the hypogastric venous system are not especially affected by operation directed to the saphenous system. Also, the more radical procedures proposed for use during pregnancy will not adequately solve the problem of incompetent perforators so long as the aggravating feature of increased deep venous pressure, due to the obstruction of the pelvic veins by the growing pregnancy, exists.

To some extent varicosis in pregnancy is a reversible process, and the milder forms may resolve completely in the postpartum period. A certain degree of resolution of the more severe forms of varicosis can also be expected following pregnancy, depending upon the tissue elasticity of the individual.

From clinical observation and what is known of the pathological changes that take place in the development of varices, it is clear that radical surgical treatment of varicose veins during or preceding pregnancy is only of temporary value. Moreover, once an extensive operation has been done, the anatomical relationships are so distorted and the normal landmarks so disturbed that it is impossible to carry out a proper surgical extirpation[3] later—a serious consideration in light of the high rate of recurrence. Hence, the basic management of all degrees of varicosis during pregnancy should be conservative.

The keystone of conservative medical management is an adequate elastic support consisting of medium weight elastic stocking extending from the toes to the midthigh. The support must be of sufficient strength to keep the varicosities fully compressed when the patient is standing. In addition, elevation of the foot of the bed on six-inch blocks and frequent rest periods during the day with the legs elevated above the level of the heart will help promote venous return. During the last few weeks of pregnancy this position may have to be discontinued if the enlarged uterus causes dyspnea. Prolonged standing in one position or sitting with the feet dependent should be avoided. The patient must not use circular elastic garters. Finally, weight gain should be kept to a minimum and obese patients should be encouraged to lose weight. These simple measures will adequately control minimal and moderate varices, and in many cases will control the symptoms of severe varices.

Surgical intervention during pregnancy is indicated only for severe symptoms, clearly due to varicosis, or because of objective findings that are manifestations of progressive venous stasis. One would consider operation for a woman who has pronounced sensation of heaviness, fullness or pain in the legs that cannot be relieved by elastic support, or who has signs of venous stasis such as dermatitis, increasing pigmentation or ulcer formation uncontrolled by conservative means.

For such patients we limit the surgical procedure to a high ligation and division of the main incompetent venous trunks and division of the immediate tributaries. This procedure, whether involving the long or the short saphenous veins, can easily be carried out between the third and seventh months of pregnancy, using local anesthesia and permitting the patient to remain ambulatory. So simple a procedure is effective in interrupting the head of pressure in the long or short saphenous system. Combined with proper medical management this procedure will effectively control the symptoms of severe varices. Neither surgical operation nor sclerotherapy should ever be advised for cosmetic reasons during pregnancy. Furthermore, one should not lose sight of the fact that in gravid women the surgical procedure is only palliative. At the end of childbearing activity significant varicosis can then be properly treated by radical means[4] and completely eradicated.

Acute thrombophlebitis of the long or short saphenous system is a problem somewhat apart from simple varicosis. This complication should be treated by prompt interruption of the affected vessels at their proximal ends to prevent entry of the thrombus into the deep system. The use of anticoagulants has no place in the treatment of this particular complication.

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Discussion by A. M. McCAUSLAND, M.D., *Los Angeles*

The authors are to be commended for their common sense and conservative approach to this most neglected yet important complication of pregnancy. I concur with their ideas. However, in addition to their comments, I am sure injection and hormonal therapy have a definite place in the treatment of varicose veins during pregnancy.

The fact that there is a considerable recurrence rate after operation or injection or both in pregnant and nonpregnant patients is evidence that the underlying cause of varicose veins is not being eradicated. Only the isolated varicosities are being destroyed and as long as the basic etiological factors are present, other varicosities may occur over a period of years.

This brings one to the intriguing question of etiology, and there are many theories. Certainly pressures from the enlarging uterus, increased volume of blood and increased cardiac output cannot be the only factors, since we see varicose veins developing in the early weeks of pregnancy. Hormonal factors must play an important part. In 1939 we found that in 150 varicose vein cases analyzed, there was a very low incidence of abortion. This pointed to a relatively high level of progesterone which we felt might not only relax the uterus, but also would relax smooth muscle in veins, ureters, gallbladder and intestines. With this in mind a selected group with pronounced telangiectasis unsuitable for injections were treated with estrogen in an attempt to correct the imbalance in the estrogen-progesterone relationship. The results were most gratifying. Hormonal therapy is best suited for patients with decided telangiectasis unsuitable for injections and where elastic support cannot be applied. Stilbesterol, 5 mg. three times a day, is usually adequate.

Sclerotherapy is as safe in pregnant as in nonpregnant women and may be carried out in any month of pregnancy if the same tests (Trendelenburg and Von Perthes') and the usual surgical precautions are used. This is borne out by reports of large series of cases in this country and abroad. (21,000 cases at Margaret Hague Maternity Hospital; 600 cases at Rotunda Hospital and an estimated 2,000 cases in the Los Angeles City Maternity Clinic and private practice.) An isolated varicose vein feeding a telangiectatic area is particularly well suited for injection, and excellent results are obtainable. The telangiectatic spread will thus be stopped.

Yet I find that with better elastic supports now available fewer injections are given and less hormonal therapy is used in private practice.

I agree that there are situations in which radical venous operation should be done—but, as a rule, *only* after varicose veins have involuted as much as they will, which occurs at about the third postpartum month, and preferably after no further pregnancies are contemplated.

Social Security Footnotes

IN THE FIRST FIVE MONTHS of the 85th Congress, the lawmakers introduced more than a hundred bills designed to broaden the Social Security program in one way or another. Such open-handed proposals invariably win acclaim, and more tangible rewards at the polls, for their sponsors. But the alarming fact is that years ahead of schedule, the growth of the Old Age and Survivors Insurance Trust Fund has come to an end. At the moment it is paying out more than it is taking in. This unexpected deficit should serve as a red flag to the Treasury, the taxpayer, and all those who are looking forward one day to receiving retirement checks of their own. However generous its motives, even a federal pension fund cannot go on incurring obligations which exceed its resources.

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Pharyngoesophageal Diverticula

Surgical Treatment

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• **A series of 75 cases of pharyngoesophageal diverticula observed at the University of California Hospital between 1920 and 1955 was reviewed. In 64 cases surgical repair by either a one-stage or two-stage operation was carried out. Comparison of the results by both methods appears to justify the opinion that pharyngoesophageal diverticula should be repaired in one stage in practically all instances.**

PHARYNGOESOPHAGEAL DIVERTICULUM is an uncommon, acquired abnormality, usually seen in elderly persons. Invariably it causes symptoms so severe as to warrant surgical correction.

The present management of pharyngoesophageal diverticula is another example of the progress of surgical techniques in recent years. Many surgeons, including Lahey,[2] who has been particularly interested in this abnormality, have recommended that the surgical correction of pharyngoesophageal diverticula be performed in two stages. A staged procedure has been advocated in order to minimize the rate of recurrence, the incidence of postoperative fistula, mediastinitis and wound infection. In recent years, Harrington,[1] Sweet,[3] and others have recommended that primary repair of diverticula be performed.

During the past twenty years at the University of California Hospital, all pharyngoesophageal diverticula have been repaired in one operative procedure. The operations were done by the resident staff as well as the attending staff. The results of this series of operations appear to substantiate our opinion that a two-stage procedure does not minimize the morbidity and mortality rate more than a primary definitive operation.

The majority of the patients in the series were in the later decades of life (Table 1). Sixty-eight of the 75 patients were more than 50 years of age. The symptoms in this series were variable, but the most consistent complaints included some degree of difficulty in swallowing, and regurgitation. Other common manifestations of diverticula are excessive salivation, recurrent attacks of coughing or choking, gurgling noises in the throat, voice changes, and fullness in the neck. In addition, many patients frequently awakened in the night because their mouths were filled with fluid or previously ingested food. Many patients described difficulty in swallowing solid food and said that they often washed solid foods down with liquids or resorted to a primarily liquid diet. Complete obstruction from a large pharyngoesophageal diverticulum is infrequent; therefore, pronounced loss of weight and obvious malnutrition are rare. A considerable number of the patients in the present series had annoying symptoms for years before requesting definitive therapy.

The symptomatology usually suggests the correct diagnosis, but confirmation depends upon accurate radiologic studies. Endoscopic examination is rarely of value and is not recommended, since the complications from such a procedure may be extremely serious. Lateral and oblique views following a barium swallow are diagnostic, but anterior-posterior roentgenograms may be misleading. On occasion, other esophageal defects such as an esophageal web, may simulate the roentgenologic appearance of a pharyngoesophageal diverticulum. In the lateral projection, however, the roentgenograms demonstrate the characteristic initial filling of the diverticulum with barium, followed by spilling over of the barium into the proximal esophagus. Complete filling of the diverticulum invariably will be observed before any of the barium is seen to pass on into the esophagus.

As the diverticulum enlarges and becomes more dependent, the opening into the esophagus distal to the diverticulum becomes more displaced anteriorly or laterally. The large diverticulum is in a direct

TABLE 1.—*Age of Patients at Time of Operation for Pharyngoesophageal Diverticula*

Age	Number of Patients
30 to 39	1
40 to 49	6
50 to 59	23
60 to 69	30
70 to 79	10
80 to 89	4
90 to 99	1

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Presented before the Section on General Surgery at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

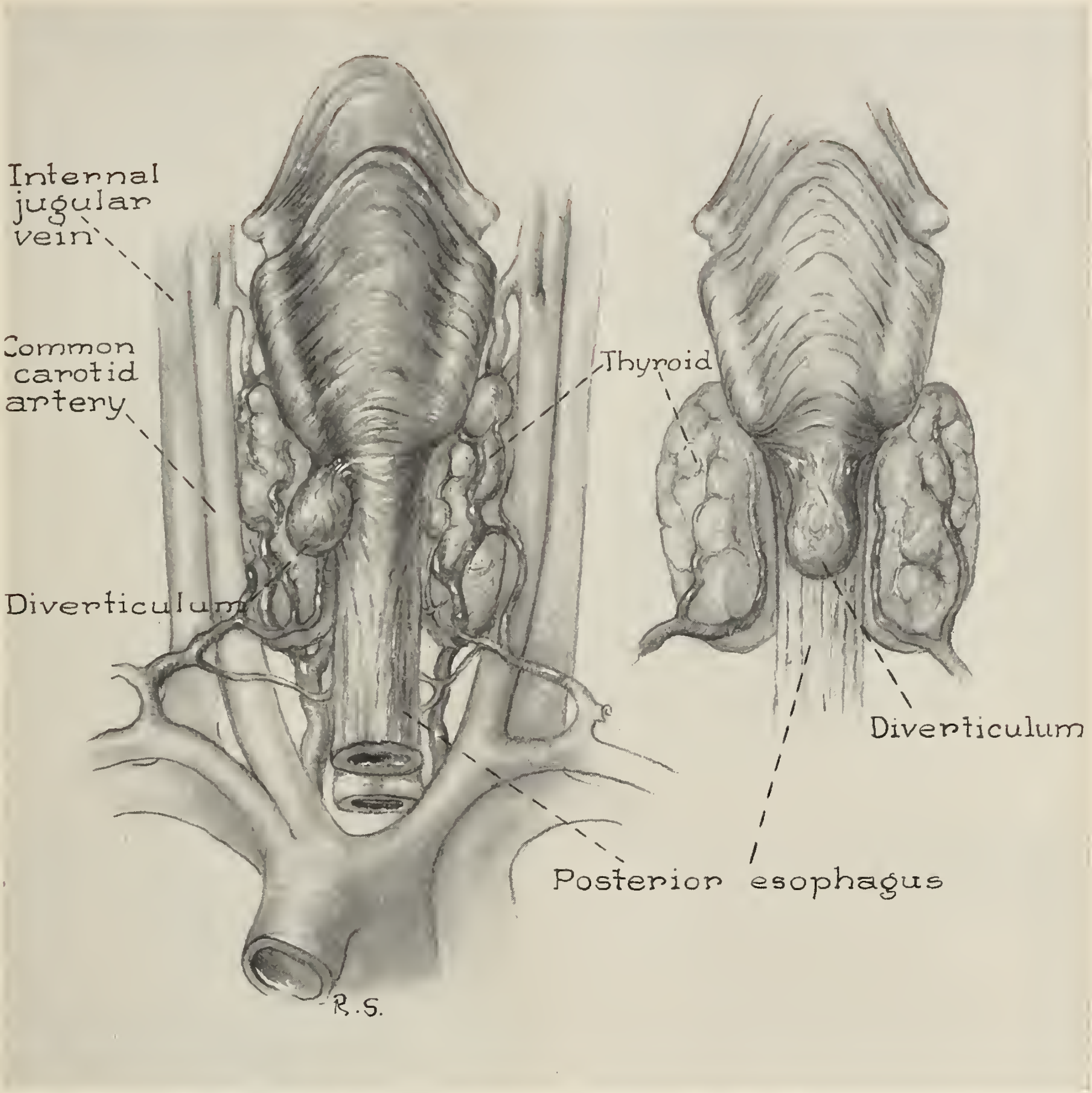

Figure 1.—The pharyngoesophageal diverticulum usually presents in the midline posteriorly, at the level of the cricopharyngeus muscle, and projects toward the left side.

line with the proximal pharynx, and therefore receives all the fluid or food ingested, which must spill over into the distal esophagus after the diverticulum is filled. When the large diverticulum is distended, the opening into the distal esophagus may be converted into a narrow, slit-like exit. This exit may be functionally obstructed, owing to its position.

Pharyngoesophageal diverticula may be present on either side of the neck, but the vast majority are observed primarily on the left side (Figure 1). In this series, 52 diverticula were observed on the left side and nine on the right. Two were classified as directly posterior, and in one patient there was a diverticulum on each side of the neck. The diverticulum becomes dependent regardless of the side involved. As it enlarges the diverticulum descends inferiorly, since this is the plane of least resistance. As the diverticulum further increases in size it may descend into the upper mediastinum.

Surgical excision of a diverticulum is not always recommended. In some elderly patients the symptoms may be only mildly disturbing. Frequently we advise against excision if the symptoms are limited and not progressive in nature, the diverticulum is shown roentgenographically to be small and the patient has other, more serious abnormalities.

Preoperative preparation is limited in the majority of patients; and, since they are usually in the

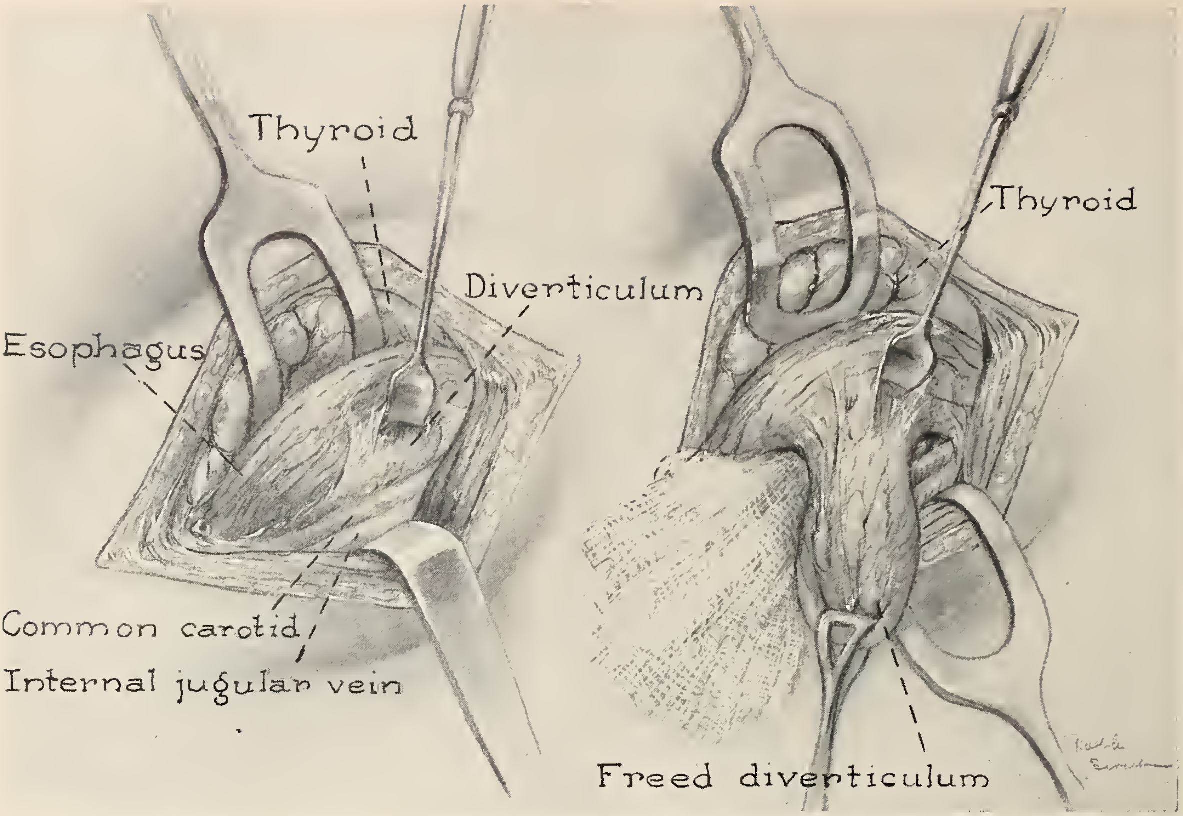

Figure 2.—The diverticulum is mobilized, dividing all adhesive bands and muscle fibers at the base.

elderly age group, we have made it a point to carry out a thorough preoperative cardio-renal evaluation. Malnutrition occasionally is a definite problem, and one that is difficult to correct until the patient can ingest a diet adequate in calories. In these circumstances a two-stage procedure may be considered. We have administered penicillin troches on many occasions, particularly if there was obvious oral infection. In most cases a combined antibiotic, such as penicillin and streptomycin, has been administered the evening before operation. A nasogastric tube is introduced preoperatively, if possible. The tube should be passed cautiously, however, for traumatic perforation of the diverticulum is possible. We advise against preoperative endoscopic examination, lest the instrument rupture the sac. No significant information can be gained by endoscopic visualization of a pharyngoesophageal diverticulum. Such a procedure may be of definite value if the roentgenograms are not characteristic, or if one is considering the possibility of obstruction or extravasation secondary to a neoplasm.

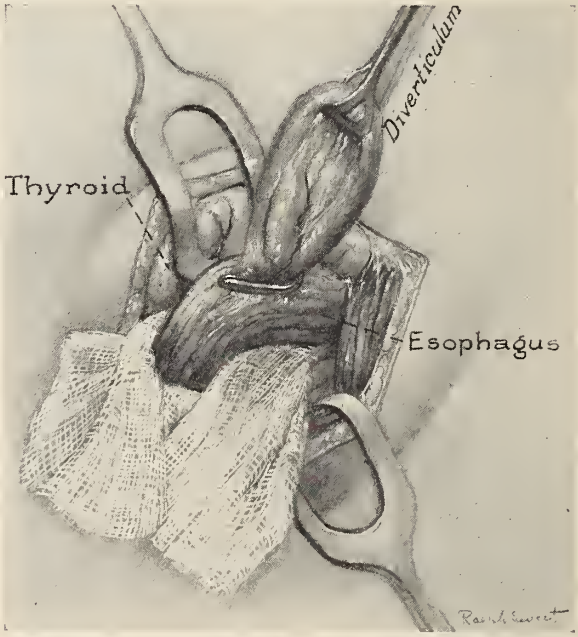

Figure 3.—After complete mobilization, the neck of the diverticulum is clamped.

The choice of the type of anesthesia rests with the surgeon and the patient. The operative procedure can be carried out readily with either local or general anesthesia. In 38 of this series of 64 operative cases, local anesthesia was used, and in 26 cases general anesthesia. We have used both cervical plexus blocks and regional field blocks with equal success.

The type of incision used is either transverse, over

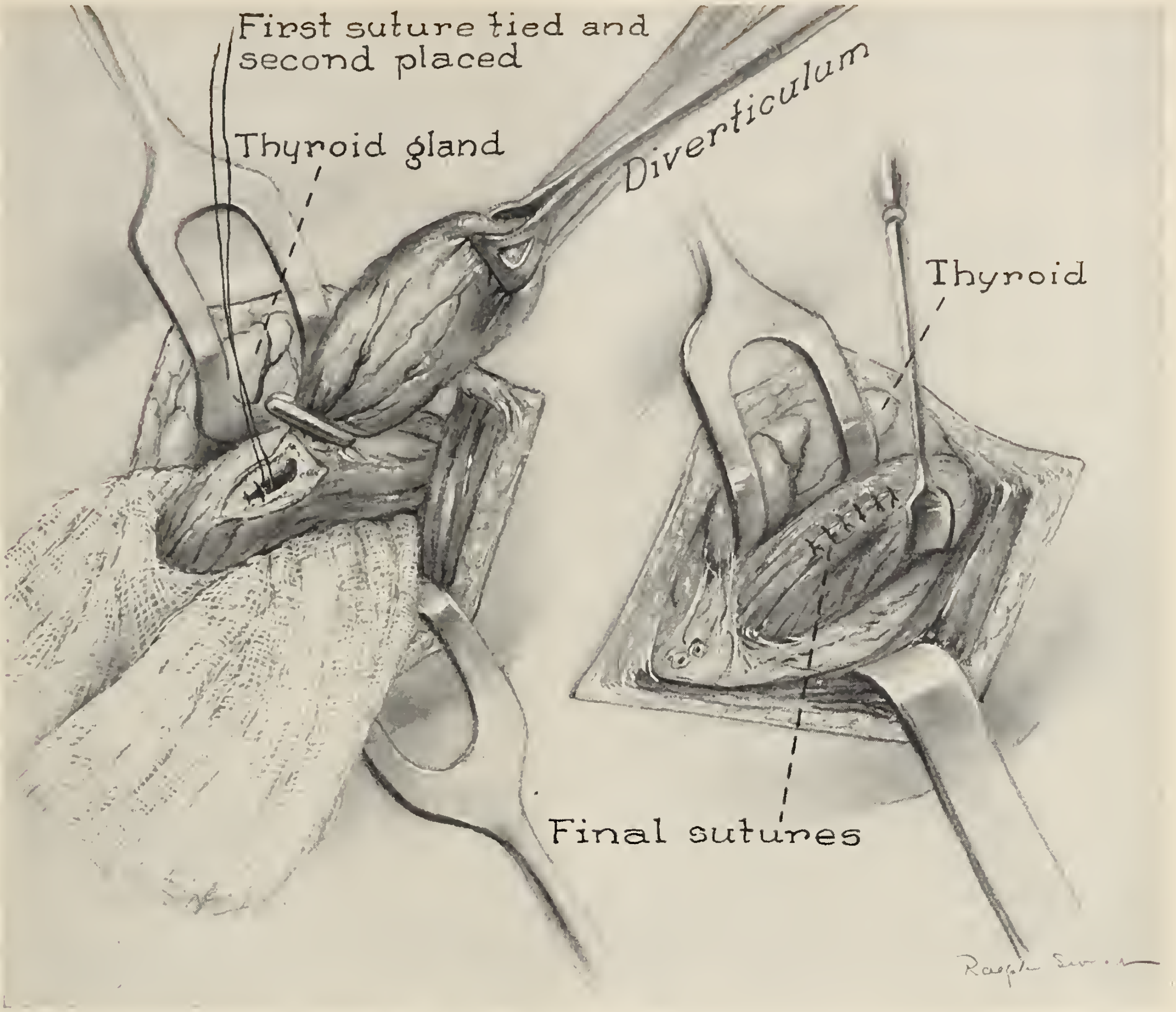

Figure 4.—An open technique of closure of the esophagus in layers is completed.

the approximate position of the neck of the diverticulum, or longitudinal, parallel to the anterior border of the sternomastoid muscles. The latter incision is used most frequently since it affords uniformly excellent exposure for all cases.

The incision is developed along the medial border of the sternomastoid muscle, which is mobilized and retracted laterally. The venous branches along the medial aspect of the jugular vein, including the thyroid veins, are divided and the thyroid is elevated and retracted medially. The recurrent laryngeal nerve may then be identified adjacent to the inferior thyroid artery. The diverticulum is completely mobilized and the fascial coverings are carefully dissected free (Figure 2). The muscle fibers of the inferior constrictor and cricopharyngeus muscle are thoroughly dissected free, exposing the neck of the sac. which is clamped at its base (Figure 3).

At the University of California Hospital an open technique of transection and closure is preferred (Figure 4). This method assures a more accurate resection. minimizes the possibility of stricture and permits inspection of the lumen. The wound is thoroughly packed off with gauze sponges before an opening is made into the esophagus. and contamination of the wound is minimal. The wall of the esophagus is then approximated in layers with fine interrupted sutures. The wound is often drained with a small, soft rubber tube, but drains have been dispensed with in many instances without complications.

The nasogastric tube is attached to suction during the immediate postoperative period. Tube feedings are instituted on the first day following operation and are continued for four or five days. On the fourth or fifth postoperative day a liquid diet is started which progresses to soft foods before the patient is discharged. Antibiotics are administered on the first five postoperative days. The patients are usually discharged on the seventh day after operation.

TABLE 2.—*Data on Treatment of Pharyngoesophageal Diverticula (1920-1955)*

Total number of cases	75
Total surgically repaired	64
Two-stage (1920-1935)	16
One-stage (1936-1955)	48

RESULTS

A total of 75 patients with pharyngoesophageal diverticula seen between 1920 and 1955 at the University of California Hospital were studied (Table 2). Of this group, 64 were surgically treated. From 1920 to 1935, 16 patients underwent excision of the diverticulum; all the operations were done in two stages. Between 1936 and 1955, 48 patients were treated surgically and in all instances a one-stage procedure was used.

In the initial group of 18 patients, 16 were treated surgically, all by a two-stage procedure (Table 3). There were no operative deaths in this group. Four patients had transient postoperative fistulas, which closed spontaneously without other significant complications.

Of the 57 patients dealt with since 1936, 48 were treated surgically—all by a one-stage procedure. There was one postoperative death, due to cardiac failure. This series included three patients with transient postoperative fistulas (Table 4). Two of the fistulas occurred in the first three patients treated with a one-stage resection. Since 1937, only one patient in 45 consecutive cases has had a transient fistula. This patient also had a large multi-nodular goiter, which was excised bilaterally at the time of excision of a left pharyngoesophageal diverticulum. Postoperative roentgenologic studies demonstrated the fistula, as well as a second pharyngoesophageal diverticulum on the right side that had not been previously demonstrated. The fistula closed spontaneously and no further definitive surgical treatment has been done.

No patients in this group had wound infection, except for those who had postoperative fistulas. Vocal cord palsy was observed in one patient, but no other significant complications were noted in this group.

TABLE 3.—*Surgical Excision of Pharyngoesophageal Diverticula—Two-Stage (1920-1935)*

Total number of cases	18
Total surgically repaired	16
Operative mortality	0
Postoperative fistula	4

TABLE 4.—*Surgical Excision of Pharyngoesophageal Diverticula—One-Stage (1936-1955)*

Total number of cases	57
Total surgically repaired	48
Operative mortality	1
Postoperative fistula	3

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Myasthenia Gravis

Problems in Diagnosis

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• The possibility of myasthenia gravis must be considered in patients persistently complaining of weakness and fatigue. There may be many difficulties and pitfalls in differentiating myasthenia gravis from other disorders in which muscular weakness is a common complaint.

Observation of a group of 36 patients with myasthenia gravis, and another group of 30 cases involving the differential diagnosis of myasthenia gravis, led to a conclusion that a physician should apply criteria carefully before arriving at a diagnosis of myasthenia gravis and instituting drug therapy, since nonmyasthenics may frequently respond with subjective improvement temporarily following administration of cholinergic drugs.

Myasthenia gravis may be a more common disorder than was suspected in the past.

MYASTHENIA GRAVIS is a disease characterized by muscular weakness. Weakness and the inability to carry out muscular activity is commonly described as fatigue. Fatigue and lassitude are among the most common of human complaints. When they persist and form the basis of the complaint for which a patient seeks medical attention, the diagnosis of myasthenia gravis has to be considered. Because the drugs used in the treatment of myasthenia gravis, in small doses, may give the languid person a "pick up," and because myasthenia gravis may be mild and variable, the differential diagnosis is sometimes difficult; it is always very important.

Myasthenia gravis was first described by Willis in 1672.[16] It has received greater attention since Walker[19] found out in 1934 that the weakness could be reversed by physostigmine. Viets and Schwab[17] in 1935 introduced neostigmine (Prostigmine) in the clinical treatment of this disorder and the neostigmine test as an aid in differential diagnosis.

Diagnosis and treatment have been aided recently by the addition of the edrophonium (Tensilon®) test by Osserman,[10] and by the development of two drugs, pyridostigmine bromide (Mestinon®) and ambenonium chloride[12] (Mytelase®), which are clinically useful in relieving the symptoms.

The exact incidence of myasthenia gravis is unknown but estimates between 50,000 and 100,000 cases in the United States are given by physicians[13] familiar with this disease. In spite of the relative rarity, in the 34-month period between July, 1954, and April, 1957, we had the opportunity of examining 36 patients with the disease at the University of California at Los Angeles medical center. An additional 30 patients were sent to the medical center with the presumptive diagnosis of myasthenia gravis. An analysis of these cases and a brief comparison with the experience and criteria of others form the basis of this report.

The physician must have a constant awareness of the possibility of myasthenia gravis in any patient complaining of muscle weakness and ease of fatigue, despite the recognized nonspecific nature of such symptoms. An accurate history of the patient's symptoms of weakness, including their distribution and variation during the day, as well as response to activity and rest, is essential. A detailed appraisal of the patient's strength and the effect that rapid repetition of effort involving various muscles has with regard to prompt loss of strength is also essential.

Unfortunately, there is no specific test which is consistently reliable for myasthenia gravis. Several may be helpful. Among these are intramuscular injection of neostigmine[18] and intravenous injection of Tensilon.[10] Quinine sulfate[1] may be used at times in doubtful cases in attempt to provoke weakness, but this and curare should probably be used only as a provocative test by physicians fully familiar with the actions of the drugs, and then only with the patient in hospital with facilities available to maintain an open airway and artificial respiration. A myasthenic patient may have pronounced and sudden sensitivity to these drugs, particularly curare.

A placebo control injection is also desirable to evaluate the suggestibility of the patient before giving neostigmine or Mestinon. Atropine, 0.6 mg., is useful for this. It prevents many side effects of cholinergic drugs but has no effect on muscle function at this dosage. Enough time is allowed to elapse following the administration of the atropine or other placebo to redetermine the patient's complaints and muscle strength. The neostigmine test is done by giv-

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Presented before the Section on Psychiatry and Neurology at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

ing 1.5 mg. of the drug intramuscularly and then reappraising the patient's complaints and strength at intervals of 10 minutes for the next one to two hours. Improvement is usually seen within 20 to 40 minutes and may last several hours.

For the Tensilon test the drug is administered cautiously intravenously in amounts of from 2 to 10 mg. Complaints and muscle strength are observed at one or two minute intervals for the next 10 minutes. This drug acts rapidly—within one to five minutes. Toxic effects of neostigmine and Tensilon include increased salivation, abdominal cramps, urinary frequency, diarrhea, muscle twitching and muscle cramps, choking sensations, miosis and muscle weakness.

Barium swallow during fluoroscopic examination, electromyographic[3] studies, attempts to evoke the Jolly reaction by faradic stimulation, and ergographic tracings are helpful adjuncts. These may also be combined with the neostigmine or Tensilon tests. Each requires special equipment and experience. None is entirely conclusive.

It is essential that patients have demonstrable muscle weakness before the neostigmine or the Tensilon test is carried out. These tests generally are not applicable when the patient is in a remission or has recently received extensive amounts of cholinergic drugs. The use of a hand dynamometer may be helpful in assessing improvement in the patient's strength.

Frequently patients with asthenia on an emotional or psychic basis will for a time have subjective improvement and feeling of well-being in response to cholinergic drugs. This may also occur in patients who have muscular or neurological disorders of other sorts, but the effect is not consistently sustained and does not have accompanying objective evidence of improvement. This "boost," "pick-up" or nonspecific response may often be confusing to physicians unfamiliar with these test procedures and may lead to erroneous diagnosis of myasthenia gravis.

MATERIAL OF STUDY

We reviewed the records of the patients with problems of weakness who were observed by us in the division of neurology at a new University Medical Center between July, 1954, and April, 1957. There were 66 patients with these complaints in whom the possibility of myasthenia gravis was raised. Fifty-seven had had a diagnosis of myasthenia gravis made on the outside. In 34 cases this was confirmed. Two patients with other diagnoses were later found to have myasthenia. Twenty-five patients had weakness from some other cause. In five cases the diagnosis was considered doubtful.

Of the 66 patients, 54 previously had received neostigmine or other anticholinesterase drugs for a week or longer. Although the diagnosis of myasthenia was made in more cases than it actually could be confirmed, among the patients who did have the disorder, in only three cases was the diagnosis made within one month of onset of the first symptom. The delay between onset of first symptoms and diagnosis of myasthenia gravis in persons with confirmed diagnosis varied from less than one month to 23 years (Table 1). There were 21 females and 15 males in the myasthenic group. The age at onset of first symptom ranged from 15 to 69 years. Relatively early onset in females and later onset in males observed in this series (Table 2) is in agreement with data gathered by other observers.

Fourteen patients had a single initial symptom. More frequently they complained of weakness in two or more muscles simultaneously or in prompt succession. The most common symptoms were drooping of the eyelids and double vision (Table 3).

Drooping of the eyelids and double vision predominated, in both females and males, over all other

TABLE 1.—*Lapse of Time Between Onset of First Symptoms and Diagnosis of Myasthenia Gravis, in Confirmed Cases*

	Females	Males
Less than 1 month	1	2
1 month	2	2
2 to 3 months	2	3
4 to 6 months	4	1
7 to 12 months	5	4
2 years	2	1
3 years	3	—
4 years	1	—
20 years	—	1
23 years	—	1

TABLE 2.—*Age of Patients at Onset of Myasthenia Gravis*

	Females	Males
11 to 20 years	5	1
21 to 30 years	9	2
31 to 40 years	3	4
41 to 50 years	2	1
51 to 60 years	1	3
61 to 70 years	1	4

TABLE 3.—*Various Conditions Appearing as Presenting Symptoms in 36 Patients with Myasthenia Gravis. (More than a single symptom in some cases.)*

	Females	Males
Ocular ptosis	8	6
Diplopia	9	6
Jaw weak	1	3
Face weak	2	1
Voice weak	5	2
Dysphagia	2	—
Arms weak	3	1
Hands weak	3	—
General weakness	3	3

symptoms that appeared at any time in the 36 cases (Table 4).

As to the site of muscle weakness at the time of examination, ptosis and diplopia or limitation of one or more of the extraocular muscles predominated (Table 5). Of particular interest was the observation of hypoactive reflexes in seven cases, and moderate to pronounced muscle wasting or atrophy in four females.

TABLE 4.—*Incidence of All Symptoms Noted at Any Time in 36 Cases of Myasthenia Gravis*

	Females	Males
Ocular ptosis	14	12
Diplopia	19	13
Jaw weak	10	10
Face weak	2	5
Voice weak	14	11
Dysphagia	15	10
Neck weak	1	2
Arms weak	12	6
Hands weak	9	4
Respiratory difficulty	6	4
Legs weak	9	6
General weakness	12	7

TABLE 5.—*Incidence of Muscle Weakness at Various Sites Noted at First Examination of 36 Patients with Myasthenia Gravis*

	Females	Males
Ocular ptosis	15	12
Diplopia	13	12
Jaw weak	8	6
Face weak	14	8
Voice weak	10	4
Dysphagia	2	2
Neck weak	5	5
Arms weak	13	11
Hands weak	9	7
Respiratory difficulty	1	—
Legs weak	13	6
General weakness	5	3
Atrophy	4	—
Hyporeflexia	4	4
Ocular proptosis	1	1

In retrospect, the diagnosis of myasthenia gravis seems simple from the history of fluctuating muscle weakness, particularly involving the cranial nerve musculature. This weakness increases with activity and incompletely improves with rest. The weakness also is lessened by giving anticholinesterase drugs. The following two cases illustrate delay and confusion regarding the diagnosis.

CASE 1. A 47-year-old man had had weakness of muscles for 23 years, beginning with transient double vision and facial weakness after a minor cranial injury, without loss of consciousness, while in military service. The patient also noted general weakness, drooping of the eyelids, sore, aching neck, difficulty in swallowing, difficulty in talking and sometimes weakness of the upper right extremity. On at least five occasions he had had remission of all symptoms for periods of a few weeks to several years. There was a history of perforated duodenal ulcer. The patient continued to work regularly despite the symptoms, which were never severe.

Upon examination, a fluctuating ptosis was noted, at times greater in the left than the right eye. There was bilateral variable limitation of extraocular movements. Mild to moderate muscle weakness in the left shoulder girdle and triceps was noted. A neostigmine test done elsewhere (the first in 23 years since the onset of symptoms) gave prompt relief of muscular weakness. The patient had good response to continued therapy with neostigmine and Mestinon by mouth.

CASE 2. A 65-year-old surveyor was unable to bite through his usual noon-day salami sandwich. Each succeeding bite was weaker and he had to close his mouth with his hand. He could not hold his pipe between his teeth. Soon he had difficulty in holding his head erect, along with transient double vision, weakness of voice, inability to extend the fingers and weakness in the legs on climbing about the hills while surveying. All symptoms fluctuated and were worse after exertion.

An intramuscular Tensilon test was done elsewhere and the result was interpreted as negative. The following day the symptoms were worse and the patient attributed the deterioration to the test. He was considered to have hysteria. He sought additional opinion. The patient had had a toxic goiter removed six years previously.

Upon examination by us, ptosis and weakness of the jaw, face and neck musculature were noted. The deltoid muscles were also weak. Repeated tests elicited increasing weakness of the thigh flexors. There was no evidence of hyperthyroidism. An intravenous Tensilon test gave prompt relief of the symptoms and signs. The relief lasted about 25 minutes and was followed by increased symptoms. Later Mestinon was given by mouth and the therapeutic response was good.

It is to be noted that the first Tensilon test in this case was done by giving the drug intramuscularly, an unsatisfactory method and probably the reason for the "negative result."

* * *

In a second group of five cases it was doubtful whether the patient had myasthenia gravis currently, had had the disorder in the past (being presently in a state of remission) or had some other disorder. There were three females and two males in this group. The age range was 24 to 60 years. Duration of symptoms ranged from two to eleven years. All had received neostigmine or other similar drugs. Two complained of double vision, one of feeling tired, one of weakness in the hand and difficulty in writing, and one of arm weakness and buckling of the knees. Two cases illustrate the difficulties of diagnosis in such instances.

CASE 3. A 49-year-old housewife and former telephone operator had a history of easy fatigue and tiredness for 12 years. On several occasions she had collapsed suddenly and had been unable to talk. She said that sometimes her muscles "would not obey." At times she had a feeling of heaviness in the stomach and chest and she had difficulty breathing. Climbing stairs was also difficult. Her vision was intermittently blurred and she had pins-and-needles sensation on her neck. She had worried about her heart in the past. A diagnosis of myasthenia gravis had been made four years previously, and she then had begun taking neostigmine, up to 22 tablets (15 mg. each) daily. Later she combined this amount of neostigmine with four Mestinon tablets (60 mg. each) daily. She did not have clear-cut relief. Occasionally she felt nauseated and dizzy.

On examination she was observed to be obese. She sighed frequently. There were occasional twitchings of the eyelids and the grip of the hands felt slightly weak, but there was no other clear weakness on repeated effort or other neurological abnormality.

It was believed that she had mild cholinergic intoxication. We recommended she gradually discontinue use of neostigmine and Mestinon. She was observed for a two-month period, but she did not reduce the dosage of neostigmine below 15 tablets daily since it seemed to relieve her subjective feelings of exhaustion. There was no evidence of increased weakness at the lower dose. No changes in condition were noted over the period of observation and she continued to complain of blurred vision and nausea.

A definite diagnosis in this patient could not be made. It was not possible to differentiate cholinergic intoxication, myasthenia gravis, myasthenia gravis in remission or asthenia of undetermined cause associated with emotional problems. She refused to give up neostigmine and continued to take sizable doses. Asthenia of undetermined cause seemed a likely possibility.

Case 4. A 39-year-old unemployed, married salesman noted intermittent double vision 11 years earlier. At 17 and 22 years of age he had had head injuries, with unconsciousness both times, but without immediate sequelae. Six years earlier he had a series of three operations on the extraocular muscles in an attempt to correct intermittent, convergent squint. These were only briefly successful in relieving double vision. Five years earlier the diagnosis of myasthenia gravis was made elsewhere and neostigmine was prescribed. At first the patient noted improvement. He increased the dosage gradually up to 80 tablets (15 mg. each) a day. Then he began to have episodes of muscle soreness, twitching, breathlessness, cramping, weakness, tightness in the throat, failing voice, difficulty in breathing and occasional abdominal cramps and sweating. He also took ephedrine, racemic amphetamine (Benzedrine), dextroamphetamine (Dexedrine) and betaine glycocyamine (Betasyamine) in varying amounts. He was given corticotropin (ACTH) and acetazoleamide (Diamox), following which he had transient, sudden "remission" of all symptoms for three and a half weeks. He had not worked for over a year.

On examination he was observed to be muscular. He was very talkative and he sighed frequently. He had variable exotropia and horizontal nystagmus on lateral gaze to either side. Convergence was impaired. The right palpebral fissure was slightly wider than the left There was no ptosis. Frequent twitches of the eyelids and masseters were present. There was no evidence of muscle weakness.

The gait was bizarre, with deep bending of the knees and reeling and staggering from wall to furniture. When walking the patient sighed deeply, breathed laboriously and complained of exhaustion. Results of nonequilibratory coordination tests were normal.

When it was suggested that he might not have myasthenia gravis and should reduce the amounts of drugs he was taking, he became quite agitated, critical and difficult. He had several interviews in the psychiatric clinic. Gradually and with protest, he reduced the use of drugs and finally stopped taking them. He telephoned at odd hours, relating that he was in a state of collapse and couldn't get his breath, even as he continued to talk in a loud, clear voice for periods up to 45 minutes. When use of the drugs he had been taking finally was stopped, muscle twitches ceased. The disturbance in extraocular movements was unchanged. He showed no other muscle weakness. After a few weeks had elapsed he attempted to resume use of neostigmine when he felt weak. Cramps, sweating and diarrhea promptly ensued. He made no subsequent attempts.

In this patient it was impossible to clearly differentiate among myasthenia gravis relatively localized to the extraocular muscles, myasthenia gravis in remission, hysterical convergence spasm, intermittent diplopia from some other cause, cholinergic crisis, other manifestations of hysteria and conversion, the effects of previous operation on eye muscles and asthenia of undetermined cause. It was obvious that emotional or psychological factors were prominent, although not exclusive.

A third group of 25 patients did not have myasthenia gravis. In this group there were 23 females and two males. Nineteen had had diagnosis of myasthenia gravis elsewhere. Seventeen had received anticholinesterase drugs for a significant time. The initial symptoms or complaints were similar to those noted in the patients who had myasthenia gravis, but were more diversified. Eleven patients complained of fatigue, tiredness, lack of energy; three of general weakness; two each of transient double vision, drooping eyelids, voice disturbance, weak arms, weak legs and "myasthenia gravis"; and one each of inability to use extremities after sleep, frequent blinking, muscle tightness in thighs and legs, difficulty in walking since childhood, sudden shakes, shakiness of legs, alterations of consciousness, itching and peeling of lips, and nervousness. Details of all of the complaints and findings were so diverse and extensive as to be of no value; they constituted a heterogeneous group of disorders

(Table 6). Eleven of this group, all of them females, had asthenia of undetermined cause. In two cases these complaints had existed for more than six and less than twelve months. In nine cases they had existed for longer periods—from four to forty years. In none was there clear-cut evidence of objective neurological, muscular or metabolic defect to account for the subjective complaints of weakness. Nine of the eleven patients had received neostigmine therapy.

TABLE 6.—*Diagnoses in 25 Nonmyasthenic Cases*

Myotonia atrophica with hyperthyroidism and thyrotoxic myopathy.
Bulbar amyotrophic lateral sclerosis.
Bulbar and cervical amyotrophic lateral sclerosis.
Familial external ophthalmoplegia.
Nonfamilial external ophthalmoplegia with atypical muscular dystrophy.
Dermatomyositis and carcinoma of breast.
Probable brain stem infarction and known coronary occlusion.
Old pulmonary (Tbc.), hypertensive cardiovascular disease, diabetes mellitus, and arteriosclerosis.
Habit spasm of blinking and old herpes zoster of face.
Narcolepsy with sleep paralysis and possible cataplexy.
Probable temporal lobe seizure with old head injury and superimposed hysterical weakness.
Probable sleep paralysis, chronic cough and breathlessness on neurotic basis.
Simple senile mental deterioration and atrophic dermatitis.
Postinfectious asthenia.
Asthenia of undetermined cause (11 cases).

Difficulties in differentiating the myasthenic from other disorders is illustrated by the following cases:

Case 5. A 47-year-old housewife from a distant town was transferred to the hospital at the University of California at Los Angeles medical center by ambulance with a chief complaint of "myasthenia gravis." She had a history of easy fatigability and intermittent difficulty in walking since childhood. As a child she wore braces on her legs. She fell frequently in her teens. On direct questioning she admitted occasional double vision. Five years earlier she was considered to have myasthenia gravis. She began taking neostigmine by mouth and noted transient improvement in symptoms. She continued to have feelings of general weakness, for which she took additional neostigmine. This was frequently followed by tight feelings in the muscles of the throat, choking sensation and difficulty breathing for which she received oxygen inhalation therapy. Before admittance to hospital, she had remained in bed for six months following collapse at the time of extraction of a tooth. During the three months immediately preceding admittance she had a chronic cough and more frequent choking spells. She was taking 12 tablets of neostigmine (15 mg. each) and 12 tablets of Mestinon (60 mg. each) daily when admitted.

Upon examination the patient was observed to be tense, anxious and tremulous. The pupils were miotic. Early clubbing of the fingers and toes was noted. Strength was poorly sustained but improved with repeated testing and encouragement. X-ray films of the chest showed a sharply delineated mass in the anterior aspect of the right mid-lung field.

Use of neostigmine and Mestinon was discontinued within two days. The patient had no loss of strength and became ambulatory for the first time in six months. The pupils became larger.

Right upper lobectomy was done at another hospital and adenocarcinoma with spread to the hilar nodes was diagnosed. The patient died three months later of metastasis.

Case 6. A 51-year-old woman, a professor of art, some three months before admittance to hospital, noted tightness in the legs and thighs, followed by weakness making it difficult for her to operate her car. Her back, trunk and upper extremities became weak within the next two weeks. She was admitted first to another hospital and there had difficulty in chewing, swallowing and talking. She was considered to have myasthenia gravis and administration of neostigmine and Mestinon was begun. Nausea, vomiting, diarrhea, muscle twitching and cramps developed, without improvement in strength. X-ray, 500 r, was given over the thymus, then corticotropin (ACTH) and cortisone. Slight improvement followed. In the course of further examination a mass in the left breast was noted. She said the lump had been present for four years. Biopsy revealed carcinoma. Intensive x-ray therapy to the breast and axilla was given. Then testosterone was administered. Strength slowly improved and the patient was referred to us for confirmation of myasthenia gravis three months later. She had spent considerable time lying in the sun.

Questioning elicited an episode of "nonparalytic polio" four years earlier, during which there were no abnormalities in the spinal fluid. Thereafter the patient had soreness, stiffness, tightness and slight weakness in the thighs, which responded to hot packs and physiotherapy over a period of four months.

Upon examination the patient was noted to be well "tanned." Also noted were general moderate muscle atrophy and constant weakness involving the face, neck, shoulder girdle, forearms, pelvic girdle and legs. Bilateral foot drop was observed. The deep tendon reflexes were absent in the upper extremities. The ankle jerks were 2 plus. There was no sensory defect. No satisfactory diagnosis was immediately reached. The patient continued to gain strength in the legs and resumed teaching, but six months later she returned with pain in the shoulders, worse on the left, and difficulty in holding her head erect. An electromyogram elsewhere was considered consistent with muscular dystrophy with a myotonic component. At that time there were contractures limiting abduction of the arms, and the shoulder girdle weakness was greater than before, especially on the left. There were no abnormal masses felt in the axilla. Sensation was intact. The left subacromial region was tender. The patient's head hung forward. The skin remained deeply "tanned" although she had not been in the sun for several months. The dorsum of the hands, fingers and knees were erythematous and rough. The possibility of dermatomyositis was considered and later was proved by muscle and skin biopsy in the hospital. Meticorten was given to her as an outpatient and reduction in pain and improvement in strength ensued.

Ten months later the patient slipped and fell at school, receiving an intertrochanteric fracture of the right hip. She was admitted to the hospital again. Nailing was done at the site of fracture. A skeletal x-ray survey showed no metastatic neoplastic lesions. The patient resumed walking unaided two months later and returned to her teaching duties.

This case illustrates the association of dermatomyositis and malignant disease. In this the neoplasm was carcinoma of the breast. The weakness was initially confused with that of myasthenia gravis. It is quite possible that the episode of "nonparalytic polio" four years earlier was the onset of the polymyositis and that there was then spontaneous remission. When the next episode occurred, her condition improved with the administration of corticotropin, cortisone and, later, meticorten. However, she had also received intensive x-ray therapy, as well as testosterone, which may have had some influence. Spontaneous remission cannot be excluded.

DISCUSSION

These cases illustrate only a few of the problems facing a physician attempting to unscramble and relieve the patient's complaint of muscle weakness and fatigue of various sorts with particular relation to myasthenia gravis. Among other disorders which may be considered in differential diagnosis, to make a partial list, would be: Amyotrophic lateral sclerosis, adynamia episodica hereditaria, botulism, cholinergic crisis, catalepsy, dermatomyositis, familial periodic paralysis, hyperparathyroidism, hyperthyroidism, multiple sclerosis, myotonia atrophica, narcolepsy, polymyositis, polyneuropathy, primary aldosteronism, progressive external ophthalmoplegia, progressive muscular dystrophy and psychoneurosis with asthenic reaction. At times more than one disorder may be present. Our findings and criteria, although in a relatively small series, are in general agreement with those of larger series reported by Schwab and Leland,[14] Hoefer and co-workers,[6,11] Eaton and co-workers,[2] Grob and Harvey[5] and Turner.[15]

The initial complaints in myasthenic persons are often attributed to emotional stress and exhaustion because of their fluctuating evanescent nature. At first the patient may feel tired or more easily fatigued than usual. He may have sudden drooping of one or both eyelids. Transient double vision is another early complaint. Facial weakness with inability to smile or whistle, and lack of facial expression are common. Women find it hard to raise their hands and arms over their heads to put up their hair or remove and replace housewares on high kitchen and closet shelves. Walking and climbing stairs may be increasingly difficult as the task is continued, only to become somewhat easier after a short rest. Trouble in chewing, swallowing, talking and keeping the mouth closed are other frequent symptoms which increase with continued effort. The voice gradually fades with continued talking. The patient may have difficulty keeping the head erect and find that he can flex but not extend the fingers. More severely affected patients may be unable to swallow oral secretions, or cough or breathe adequately. No muscle group is immune.

The weakness is increased with activity and improves incompletely with rest, only to recur with further activity. In women, weakness usually is greater just before or at the time of the menses. Infections, fevers and emotional stress are often accompanied by increased weakness. At first weakness of only one eye muscle or other muscles served by cranial nerves is present for a few days or weeks. Then this weakness may disappear entirely for several months or years, only to recur in more pronounced form with additional weakness elsewhere.

Although the patients may be severely weak and apprehensive, they often appear deceptively passive and calm. This is attributable to the weakness of the muscles controlling facial expression, the voice and extremities through which overt evidence of anxiety and acute difficulty are commonly manifested. The tendon reflexes are normal or somewhat reduced in severely involved muscles.

The exact cause of myasthenia gravis is unknown. The current theory[8] and studies indicate it is due to a variable defect in the electrochemical mechanism by which the nerve impulse is transmitted to the muscle at the neuromuscular junction. This is often likened to the neuromuscular block produced by curare, but differs from it in several respects.

There are no specific pathological changes in the nervous system or muscle as determined by usual laboratory techniques. Collections of lymphocytes, called lymphorrhages, are occasionally seen in the muscles. Thymic enlargement or thymoma is seen in about half of the patients.[2,4,9]

It is a disorder mainly of young women and older men, but may occur at any age. Sixty-four per cent of the women have the first symptoms before 30 years of age, and 74 per cent of men after that age.[14]

Neonatal myasthenia may occur in infants of myasthenic mothers. It is transient and responds favorably to therapy, which may be life saving.

Since failure to recognize and treat myasthenia gravis or treating another disorder as myasthenia gravis with antimyasthenic drugs may involve serious risks to the patient and confuse the physician with additional symptoms, it seems worthwhile to reconsider means for improving diagnostic accuracy.

The concept that nonmyasthenic persons are unable to tolerate large doses of neostigmine or other similar drugs is not substantiated in our experience. Many of the patients we observed with complaints of weakness in association with psychoneurosis built up to large doses in attempting to overcome their subjective symptoms. Some had moderate to severe side effects at intervals. None showed any frank evidence of increased weakness on rapid withdrawal of the drugs. Some insisted on continuing use of the drugs as a psychological crutch.

On the other hand, it is well known that the course of myasthenia gravis may fluctuate widely, as well as the need for antimyasthenic drugs. Not uncommonly a patient with myasthenia gravis who once required large doses is still taking them even though when examined they have good strength or even signs of mild cholinergic intoxication.

Reliable diagnosis of myasthenia gravis may be made only after the physician obtains an accurate history of the patient's complaints and problems, along with a careful physical and neurological examination, supplemented by appropriate laboratory examination and tests. It is always desirable to reach a prompt diagnosis, but the decision that the patient has myasthenia gravis should not be made until after all evidence has been weighed and carefully appraised. Cholinergic or anticholinesterase therapy should be given on the basis of positive, objective findings rather than subjective findings. The use of such medication for supportive therapy in patients with other disorders is hazardous and should be discouraged.

The advent of previously mentioned new drugs for the diagnosis and relief of symptoms in myasthenia gravis, the increased interest in neurochemistry and in neuromuscular transmission, along with the general absence of degenerative changes in myasthenic persons, make the future seem bright for patients with this disorder.

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Psychiatric Services in General Hospitals

A Report of the Northern California Psychiatric Society's Committee On the Need for Psychiatric Services in General Hospitals

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• A study made by a special committee appointed for the purpose by the Northern California Psychiatric Society found that a real need exists for local psychiatric services in general hospitals of the Northern California area. Such services can be provided readily—and in some communities are already available. A broad segment of the population looks to the general hospital to provide diagnosis and care and so enable the patient's prompt recovery from psychiatric disorders. The study further emphasizes the importance of such factors as a competent psychiatric chief, adequate staff and personnel and good planning in organizing inpatient and outpatient facilities and integrating treatment so that all the functions of the hospital are available to psychiatric patients. Granted these special considerations, the services can be provided more easily than many physicians, including some psychiatrists and administrators, suppose.

THE Northern California Psychiatric Society in the fall of 1955 formed a committee* to study the need for psychiatric services in general hospitals. This is a brief report of the study, which showed that there exists a real need for psychiatric services in general hospitals, public and private, in the Northern California area. As a result of its study, the committee came to several conclusions: (1) Many people prefer to have psychiatric illnesses treated in the local communities; (2) this arrangement promotes prompt care and recovery; and (3) general hospitals can provide psychiatric care more easily than many physicians suppose.

Opinions on Needs

The committee began with Dr. Alfred Auerback's preliminary study of psychiatric needs in the Greater Bay Area, and then reviewed the extensive survey of the eleven western states by the Western Interstate Conference on Mental Health, the report of the 1951 Conference on Psychiatric Education, pertinent papers presented at the 1956 meeting of the American Psychiatric Association; several other national reports and a local survey of the San Francisco Mental Health Society. Committee members also consulted with various physicians, hospital administrators and psychiatrists in the Northern California area. The committee took note of the fact that representatives of the medical profession who appeared before a congressional committee studying the health of the nation emphasized the need for community psychiatric facilities. One of them, Dr. S. Bernard Wortis, of New York University School of Medicine, stressed the need for more community service clinics, guidance centers and general hospital psychiatric units as "the best method of preventing serious and chronic mental illness, with its associated drain, both economic and personal." The need for wider care, it was noted, led to passage in 1946 of the National Mental Health Act, which by 1951 had given aid to mental health programs in 51 states or jurisdictions.

Local Expression of Needs

A few examples from California Department of Mental Hygiene files indicate the extent and nature of the requests for help in dealing with local mental health problems.[4] One official asking for aid stated that the county had no psychiatric service, either inpatient or outpatient, and "no practicing psychiatrist or trained social worker." Another county declared that local psychiatric services are a "real community weapon against problems of narcotics, alcoholism, sex crimes, broken families and delinquency." A third county listed approximately a half dozen important psychiatric problems in children, adolescents and adults for which it had no treatment facilities. A Bay Area outpatient psychiatric clinic reported that since its opening in 1948 it had turned away ten persons for every patient it could treat. The Community Mental Health Services bill, originated by the California Medical Association, endorsed by more than 50 lay groups, and passed by the California State Legislature in 1957, is proof of wide community interest.

Finally, many patients and their families reported their surprise to find that hospitalization for an acute psychiatric illness is not locally available. Several careful studies showed the long delays and the various stopgaps, even the intervention of police, that may be tried before psychiatric care begins. These delays often mean that the patient must be deported to a distant, strange institution, a procedure with some stigma in the eyes of family, friends and employers. Valuable time has been lost in the legal commitment procedure, and after hospitalization more time has been lost in the interval between the new evaluation of the patient and the beginning of definitive treatment. Most of these delays and discontinuities in treatment could be avoided if adequate local facilities were available.

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Psychiatric Units in General Hospitals

All physicians know the therapeutic advantages of continuity of medical care, wherein diagnosis, consultation, treatment and rehabilitation of an acute or exigent condition can proceed in a single setting without delay. Psychiatric disorders should have similar continuity of care. Phases of such disorder occur, from infancy to old age, both alone and associated with or secondary to such organic conditions as pregnancy, surgical treatment, fractures, brain tumors and all toxic states. Much of psychiatric, as of other medical care, is predictable and can be readily provided. Psychiatric emergencies also arise and require prompt treatment, quite as much as does severe hemorrhage.

Adequate psychiatric treatment for conditions occurring in patients already in hospital or dwelling in the community can be given in a general hospital psychiatric unit. An example is the management of the withdrawal symptoms after alcoholic intoxication. Medicine now accepts alcoholism at all stages as essentially a medical problem, but one in which nonmedical organizations can be of great aid. Acute alcoholic intoxication can be treated otherwise, but brief hospital care is best, in Block's opinion,[2] for laboratory procedures, intravenous therapy and emergency measures are readily available. The American Hospital Association years ago urged all general hospitals to set aside 5 per cent of beds for alcoholics. Yet Hayman's[5] recent survey of Southern California hospitals showed lack of beds and of psychiatrists for such care.

Short periods in the psychiatric unit also greatly benefit patients with psychosomatic conditions of the various body systems, brain disorders, mental deficiency, psychosis, neurosis and personality disorders. The great recent advances in therapy allow adequate treatment in the psychiatric unit of patients with geriatric disorders complicated by disturbance in their mental state.

Psychiatric units and outpatient clinics in general hospitals have also to some extent acted as way stations, permitting earlier release of state hospital patients and aiding them in their return to full economic and social status. A variation of this rehabilitative function has been successfully tried in several outstanding Canadian and United States psychiatric units that provide only day care[3] or night care.[6] This device allows each bed to be used by two patients in a 24-hour period. Such day or night services allow some patients to continue on the job or to remain in the community and near home at less than the usual expense.

Psychiatric outpatient services were not investigated in detail by the committee, since they may be established independently or in connection with other institutions than the general hospital. The committee found, however, that these services can be usefully integrated into the total outpatient services and clinics already established by any general hospital. The combined inpatient and outpatient psychiatric care offers the optimal service in keeping the patient within the community and hastening his participation in community life.

Matters of treatment, methods, training, staffing and administration, as well as medicolegal aspects and voluntary health insurance considerations are all discussed by Bennett and co-workers and special contributors in "The Practice of Psychiatry in General Hospitals."[1]

Installing and Maintaining a Psychiatric Unit

Installing and maintaining a psychiatric unit in a general hospital is easier than many physicians think. The committee found that all such units have prospered and that all are located in hospitals whose staffs have been able to see beyond prejudice and to respond to community needs by providing total care.

Understandably, prejudices and fears arise at the idea of admitting mental patients if they are regarded as "nuts and crazy people," if it is feared that the general hospital will become a "sobering-up tank." Many people still tend to regard psychosis as a dreadful combination of rage, fear and abnormal sexual drives, for which the individual should be locked up. Actually, very few patients lose control for more than brief moments, although they then require prompt, experienced treatment. Nearly anyone can recall from personal experience periods of struggle to maintain control, and therefore knows something of how it feels to be afraid and panicky. A psychosis may be much like this except for the degree of intensity and perhaps duration.

Psychiatric services can be provided in several ways—for example, a bed or two in the medical ward or a few private rooms made available for the purpose. Such flexible arrangements provide for care as the psychiatric needs arise. Other hospitals may wish to provide an area for psychiatry, as is the usual practice for the obstetrical or surgical or other departments. For purposes of economical operation the bed capacity of the psychiatric unit should be at least 15. This minimum number satisfactorily distributes the costs per patient for the area—both housekeeping costs and those for personnel. The physical plant, with suitable space and equipment on at least a 15-bed basis, can be provided at about the same costs as in other general hospital departments.

In whatever way the general hospital wishes to offer the psychiatric services, the emphasis should be on obtaining, first, the services of a competent, interested psychiatrist to head the department and give it mature direction and leadership. He would have the responsibility of integrating the unit into the general hospital so that total medical service for the patients could be provided. He must be able to work safely with all acute psychiatric conditions and emergencies; to deal with overanxious relatives; to exchange information and assistance with the referring physician; and to cooperate effectively with other departments and hospital administration. His direction is of course needed in guiding and teaching psychiatric staff personnel and in on-the-job training of other necessary personnel. Here the nursing staff is most important in providing the therapeutic milieu and the many services for patients. As a rule nurses must be recruited from other than state hospitals. The head nurse must be selected with as much care as is the psychiatrist. Student nurses are usually delightful additions to the staff, for they supply the fresh, eager interest that patients enjoy.

The ward layout is an architectural problem that should be planned with the psychiatrist and staff who are responsible for the treatment program. The idea, however, that adequately locked and screened wards obviate all dangers to the patient is wrong. The emphasis must be on the presence of a skilled staff, alert to the problems of caring for psychiatric patients. Locks on the doors and screens on the windows do not substitute for the understanding presence and care of the patient's needs; this is especially true during the time a patient has emergency needs.

The function of the psychiatric unit should be accurately described. It should not be represented to the public as a cure-all for major community problems, especially anti-social behavior. It is also important that the referring physician should as a rule consult with the psychiatrist before transferring a patient to the psychiatric service. The general hospital psychiatric unit cannot wholly replace the state hospital.

This short report cannot enter into discussions of financing, architecture or administration. Specific help in such matters can be obtained from the Northern California Psychiatric Society. Certain considerations affect the success of the unit and must be mentioned. For example, nurses should usually be paid $12 to $15 more a month than are those on general floors, to compensate them for greater specialization in nursing skills. The chief psychiatrist should be compensated appropriately for his skill and time if he is to give adequate direction and aid to patients, hospital and colleagues.

Psychiatric Advances in Treatment

That general hospital psychiatric units can operate successfully is owing in part to advances in psychiatric knowledge. Psychiatric therapy today is a dynamic speciality with much to offer to acutely ill patients. With the psychotherapeutic skills of a competent psychiatrist, and with the drugs and the physical adjuncts now available, most of the acute disturbances, however threatening the episode, respond to a course of treatment. Medical services that do not offer psychiatric care no longer meet the total community health needs and wishes. Indeed, the American Medical Association and the American Hospital Association have indicated that resident programs that do not include inpatient care of emotional disorders may soon be denied full credit and approval.

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Long-Term Management of Patients After Adrenalectomy

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• Experience with the long-term medical management of 17 patients previously subjected to surgical adrenalectomy was reviewed.

Maintenance adrenal cortical replacement requirements consisted of oral cortisone, 37.5 to 50 mg. daily in all patients; desoxycorticosterone acetate (DOCA), 2 mg. daily, sublingually in all patients; and supplemental sodium chloride, 1 to 4 grams daily, in seven patients. This provides steroids with glucocorticoid and mineralocorticoid activity and an adequate salt intake. The subjective well-being of the patient was the best indicator of adequate replacement therapy. Under stable conditions, established dosage schedules required surprisingly little adjustment over long periods of time.

The primary need of patients without adrenal glands when they are subjected to such stresses as infections, trauma or surgical operation, is for more glucocorticoids. Ordinarily, more DOCA and extra sodium chloride is not required. Mild infections can be dealt with by temporarily increasing the daily oral cortisone requirement, the patient remaining ambulatory. Severe infections with pronounced systemic manifestations require hospitalization and parenteral administration of glucocorticoids. Knowing how long it takes for the various glucocorticoid preparations to take effect and how long they continue to act is important in the management of patients who have had adrenalectomy, particularly in dealing with extraordinary stresses or emergencies.

Since the initial reports of Huggins[5,6] in 1952 on the favorable palliative effect of surgical adrenalectomy on the course of some patients with metastatic carcinoma of the breast, there have been a number of papers by other groups of investigators reporting similar observations. I have been a participant in a team from the Cedars of Lebanon Hospital in Los Angeles which some two years ago reported their results of palliative treatment of metastatic breast carcinoma by surgical adrenalectomy.[13] The essential conclusion of that report was that surgical adrenalectomy was a palliative procedure suitable for selected patients with metastatic cancer of the breast. Since adrenalectomy induces a second disease in patients already seriously ill, it would seem that a prime consideration in the selection of this procedure as a therapeutic choice offered to patients with metastatic breast disease, would be the ease or difficulty of the long-term management of patients after removal of the glands. Surprisingly, there is scant information in the literature on this very point. The present report is a review of experience in the long-term medical management of 17 patients previously subjected to surgical adrenalectomy.

DESCRIPTION OF PATIENTS

Sixteen patients, all women, had metastatic carcinoma of the breast, and adrenalectomy was performed as a therapeutic palliative procedure in the management of the disease. One patient, a male, had a large cyst of an adrenal gland, and severe adrenal insufficiency developed after surgical removal of the adrenal cyst with the adrenal gland attached. Six patients were observed for one year or longer, the longest period being almost three years. Another four patients were observed for from six to twelve months before death from cancer supervened; and the remaining patients died of cancer within six months after operation. The patient with the adrenal cyst is alive and well six months after operation.

MAINTENANCE ADRENAL CORTICAL REPLACEMENT REQUIREMENTS

The criteria by which long-term adrenal replacement therapy were considered adequate were as follows: (1) Sense of well-being; (2) avoidance of symptoms of adrenal insufficiency (weakness, anorexia, nausea, vomiting, fever, hypotension, tachycardia); (3) absence of orthostatic hypotension; (4) normal serum electrolyte concentrations. The best indicator of adequate replacement therapy was the patient's subjective sense of well-being. If the patient complained of weakness or fatigue in the absence of active metastatic disease, it was considered a sign for adjustment of the replacement medication. It is worth stressing that no laboratory test was as valuable as the patients' subjective response.

The basic adrenal cortical factors necessary to fulfill the foregoing criteria are steroids active in maintaining salt and water balance (mineralocorticoid activity), and steroids potent in glucocorticoid (hydrocortisone-like) activity. Since no single known adrenal cortical steroid compound is capable of adequately supplying the above factors without unwanted side effects at any dose level, we employed a combination of the following substances as re-

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placement therapy: (1) Cortisone, (2) desoxycorticosterone acetate (DOCA), and (3) sodium chloride.

1. *Cortisone.* All 17 patients received cortisone by mouth in divided doses at a total daily dose level of 37.5 to 50 mg. Attempts to lower the daily dose to 25 mg. in several patients resulted in loss of well-being and the onset of symptoms of weakness, fatigue and anorexia. Doses exceeding 50 mg. daily ultimately caused edema and rounding of the face.

2. *Desoxycorticosterone.* All 17 patients in this series were given DOCA, 2 mg. daily, sublingually. The use of a long-acting parenteral repository form of DOCA (Desoxycorticosterone trimethylacetate) was tried in a few patients, but this route of administration was discarded for the following reasons: (a) Uncertainty as to the exact time when another injection was needed, and (b) the development of edema if larger doses of cortisone were required for any reason.

3. *Sodium chloride.* All patients were permitted ad libitum use of salt in their diets. Seven patients in this series required supplemental doses of sodium chloride tablets, 1 to 4 grams daily, in order to maintain normal serum electrolyte concentrations.

It is a matter of interest, that under stable conditions (that is, in the absence of infection, injury or surgical treatment), established dosage schedules required surprisingly little adjustment over long periods. In warm weather, some patients required extra supplements of salt and a slightly higher daily dose of cortisone (for example, 50 mg. instead of 37.5 mg.). In general, minimal maintenance requirements were needed during the cooler winter weather. In the six patients observed for a year or longer, the only variations in maintenance medication consisted in adjustments of the cortisone dosage between 37.5 and 50 mg., and in the need for extra sodium chloride supplements. In all instances, the dosage of DOCA was kept constant at 2 mg. daily.

There are slight variations from our regimen in the published adrenal cortical replacement programs of other investigators. Huggins and Dao[6] suggested the implantation of DOCA pellets, rather than the use of the oral form of this compound. The University of California group[2,3] also expressed preference for parenteral administration of DOCA. They suggested intramuscular injections of desoxycorticosterone trimethylacetate every 21 to 30 days. Pearson[12] and his group preferred to use cortisone only, in an oral daily dose of 50 to 75 mg., along with liberal salting of the diet. Very recently, Leith and Beck[8] suggested the combined use of 9-alpha-fluorohydrocortisone and hydrocortisone in the management of chronic adrenal insufficiency. I have had no experience with this regimen.

The following case report illustrates the need for the combination of mineralocorticoid and glucocorticoid steroid activity plus an adequate salt intake in the replacement program of a patient after adrenalectomy.

CASE 1. A 60-year-old white woman was admitted to the hospital, seven months after bilateral oophorectomy and adrenalectomy, for the purpose of adjusting her adrenal cortical replacement regimen. Surgical adrenalectomy had been performed because of the appearance of pulmonary metastases. Following operation, there was no further progression of metastatic disease. The patient felt well, gained weight and had excellent appetite. However, she complained of angina of effort. The blood pressure was within normal limits. Several electrocardiograms were interpreted as normal. One Master exercise test was interpreted as normal and another test was called positive for coronary insufficiency. X-ray films of the chest showed the heart to be normal in size. However, the patient was found to have pronounced hypercholesterolemia. Two serum cholesterol determinations were done and the content was 655 and 630 mg. per 100 cc. The basal metabolism rate was +17 per cent. Protein-bound iodine and thyroid radioactive iodine uptake studies could not be performed because of a recent gallbladder x-ray study.

Adrenal cortical replacement medication consisted of cortisone, 50 mg. daily by mouth and DOCA, 2 mg. sublingually daily. Diet was unrestricted as to sodium content. Dietary salt restriction, as an outpatient, had resulted in lessening of the anginal symptoms, but the patient would become weak and tired. Accordingly, she was admitted to the hospital for closer observation and study.

The pertinent observations during the stay in hospital are shown in Chart 1, and may be summarized as follows:

1. Serum electrolytes were normal during the first three days in hospital, medication remaining the same as the patient had received as an outpatient.

2. During the next 15 days, Meticorten® in doses of 10 to 15 mg. daily was given in place of cortisone and DOCA. A diet unrestricted in sodium was continued. During the first eight days, 1 to 3 gram daily supplements of sodium chloride were given, and during the last seven days DOCA, 2 mg. daily, was also given. The body weight decreased 7 pounds, the serum sodium concentration dropped below the normal range, and the serum potassium concentration exceeded the upper limits of normal. These changes are consistent with inadequate mineralocorticoid and/or salt replacement. Clinically, angina disappeared, but the patient became weak and listless, and anorexia and nausea developed.

3. During the next 12 days, the original regimen of cortisone, 50 mg. daily, and DOCA, 2 mg. daily, was resumed, with reversal of the changes noted

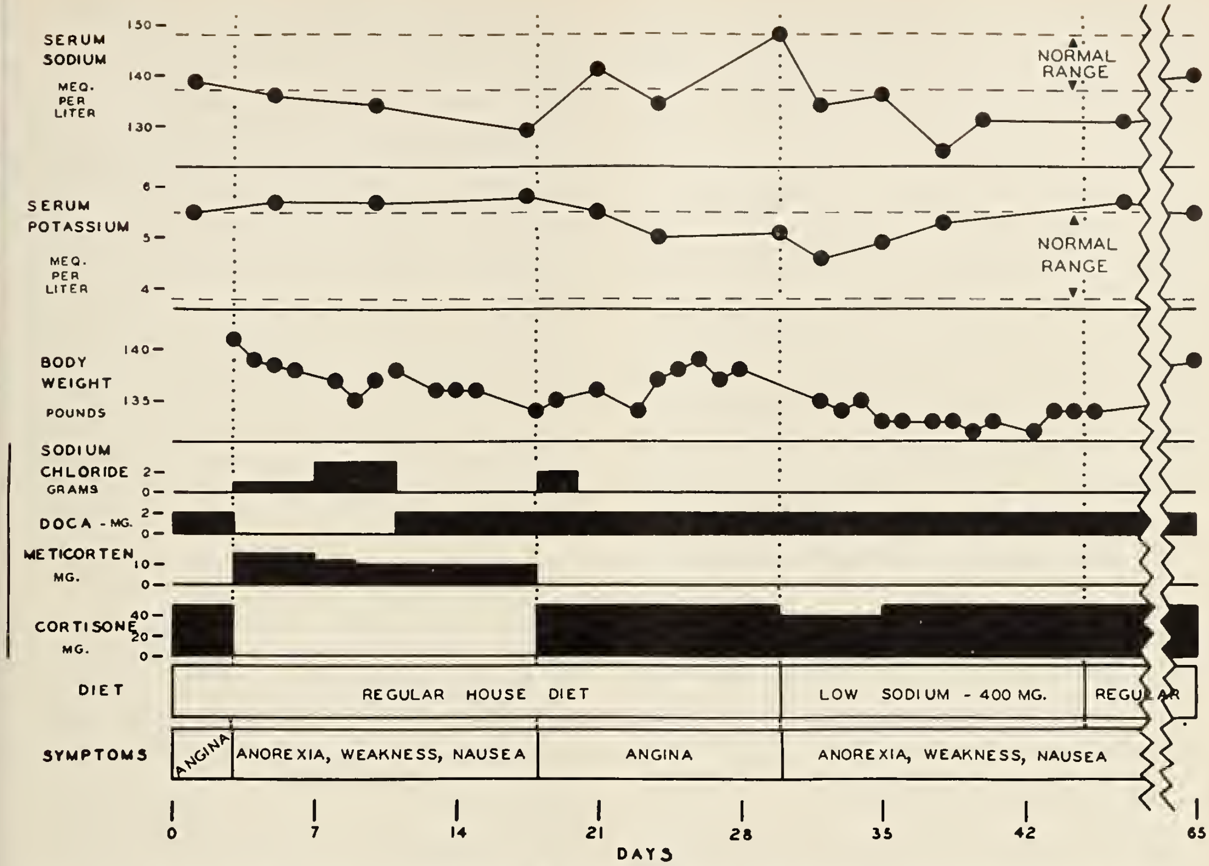

Chart 1 (Case 1).—Diagrammatic representation of serum electrolyte changes and clinical course of a 60-year-old woman after adrenalectomy, in response to various changes in adrenal replacement program.

above. Body weight increased 4 pounds and serum electrolytes returned to normal concentrations. Anorexia, weakness and nausea disappeared, but angina returned.

4. During the next 15-day period, the administration of cortisone and DOCA was continued without change in dosage, but limitation of low sodium intake to 400 mg. daily was instituted. Again, the patient lost weight and anorexia, weakness and nausea developed. Serum sodium concentration dropped and serum potassium rose. Angina again subsided. Again, the patient showed evidence of mineralocorticoid and salt insufficiency.

MANAGEMENT OF PATIENTS SUBJECTED TO STRESS

It has long been recognized clinically that patients with spontaneous Addison's disease could quickly be thrown into adrenal crisis following the introduction of a bodily stress such as surgical operation, trauma or infection.[16] Recent studies[1,4] have shown that blood 17-hydroxycorticosteroid levels increase following stresses such as surgical operation. This is believed due in part to the increased adrenal secretion of these steroids. These observations are particularly pertinent to the patient whose adrenal glands have been removed. It would mean that the adrenal cortical replacement requirements of such patients should be temporarily raised whenever they are subjected to a significant stress. The commonest stresses encountered by the group of patients here reported upon were infections, particularly upper respiratory tract infections. Patients who have had adrenalectomy should be constantly instructed on the necessity of consulting their physician at the first sign of an infection of any sort. Moreover, they should be repeatedly taught a basic method of increasing their cortisone intake should they be caught in an emergency situation, such as an accident or the inability to reach their physician immediately.

Management of Mild Infections

The incidence of mild infections, such as the usually epidemic diseases of the upper respiratory tract, did not appear to be any higher in the present group of patients who had had adrenalectomy than would ordinarily be expected in the rest of the population. These patients had an average of from none to two of the common viral and respiratory tract infections a year. Properly controlled patients who have had adrenalectomy are not more susceptible to infections, but the consequences of infection may be more severe in them.

The usual adjustment routine in the present series was to increase the dose of cortisone to 100 mg. daily orally (25 mg. four times a day) for two days, then to lower the dose to 75 mg. daily in divided doses for two days, and then finally to return to 50 mg. daily. Usually no change was made in the dose of DOCA and the intake of sodium chloride. Antibiotics by mouth were usually recommended, even in circumstances in which these substances would not be advised for ordinary patients, in order to minimize the chances of development of severe, overwhelming infection. Parenteral glucocorticoids were only advised when the patient could not retain oral medication because of vomiting. In many cases of minor infections sufficient advice could be given over the telephone, but the patient was in contact with the physician once or twice daily during the course of the illness. If the physician had the slightest doubt as to the status of the patient, the patient was seen at home or at the office, depending upon the particular circumstances at hand.

Management of Severe Infections

In three patients in this series acute adrenal insufficiency was precipitated by a serious infection characterized by severe systemic reactions. One patient had an acute bronchiolitis and died in adrenal insufficiency, the only death in this group of patients attributable to the absence of adrenal glands. A second patient had acute tonsillitis with lymphadenitis, and the third patient had a urinary tract infection with pronounced systemic manifestations. It might be well to remark here that three very characteristic signs of impending adrenal crisis are: (1) Intense weakness, (2) intense restlessness and apprehension, and (3) generalized migratory and often severe skeletal pain. Often the patient is unable to state precisely where the pain is, but that intense pain is being endured is a certainty. These symptoms are excellent indicators for immediate admittance to hospital, close observation and intensive therapy.

The basic guiding principles for the management of acute adrenal insufficiency with impending or acute adrenal crisis are:

1. The primary need is for more glucocorticoids.
2. The parenteral route of administration of steroids is important.
3. The physician should know the optimal time of action of the various glucocorticoid preparations.
4. The patient should not be overloaded with fluids and salt.
5. The intensive administration of antibiotics if infection is present or suspected.

I. *The primary need is more glucocorticoids*

Mendelsohn and Pearson[9] induced profound clinical collapse in six patients who had had adrenalectomy by withdrawing their daily cortisone medication. They found that changes in salt and water metabolism were not of great magnitude and develop slowly. They concluded that the vigorous administration of glucocorticoids was the crux of treatment of adrenal crisis in these patients. My clinical experience is in agreement with these observations. The primary requirement is for more cortisone or hydrocortisone, not for more DOCA and salt. As a matter of fact, the latter are not necessary, in my experience, whenever the daily dose of cortisone exceeds 100 mg.

II. *Parenteral route of administration of glucocorticoids*

I firmly believe that an acutely ill patient who has had adrenalectomy should always receive glucocorticoids parenterally. I prefer the intramuscular administration of cortisone for basic long range control and the intravenous infusion of hydrocortisone for the acute immediate emergency. Dependence on cortisone by mouth at any dose level is deemed hazardous in dealing with an acutely ill patient because of uncertainty as to absorption of the medication, the frequent presence of nausea and vomiting, the lack of certainty that the patient will take the drug regularly and the clinically erratic effect of oral medication in these patients.

III. *Time of action of glucocorticoid preparations*

An absolute requirement for successful preventive or therapeutic management of acute adrenal cortical insufficiency is a thorough familiarity of the optimal time of action and route of administration of the various adrenalcortical preparations. There are short acting and long acting compounds; there are quickly acting and delayed acting dosage forms; there are drugs best suited for immediate emergency situations, and drugs better suited for longer range maintenance effects. The situation is analogous to the problem of selecting the proper digitalis preparation. Unfortunately, many physicians are not aware of the basic characteristics of the various steroid preparations. As with digitalis, it is best to become conversant with the use of two or three preparations, preferably a quick acting drug for emergency use and a longer acting preparation for long range control. The following is a thumbnail sketch of the salient features of the important available glucocorticoid compounds.

1. *Cortisone*

(a) *Oral.* The oral tablets are eminently suitable for long term ambulatory therapy under stable conditions. The absorption of cortisone is more rapid after oral administration than after intramuscular administration. The clinical effect of cortisone taken by mouth is manifest within four hours and may persist for from eight to twelve hours.[17] Although quicker in onset of action, the duration of action is shorter than following intramuscular administration. As already stated, I do not feel that the oral route of administration is dependable in the acutely ill adrenalectomized patient.

(b) *Intramuscular.* Cortisone acetate given intramuscularly requires about 12 hours to begin to exert an appreciable clinical effect. A maximum effect is achieved in about 24 to 48 hours.[15,17] In my opinion, intramuscular cortisone provides the best basic parenteral glucocorticoid preparation for treatment over a period of several days. It provides a steady dependable therapeutic "floor" in an acutely ill patient. Similarly, its effects persist for 48 to 96 hours after administration of it is discontinued. However, it is not suitable for emergency use since it does not exert a significant action in time.

2. *Intravenous hydrocortisone*

The intravenous preparations of hydrocortisone are the preparations best suited for emergency situations. A significant clinical response may be achieved within one hour after the intravenous administration of 100 mg. hydrocortisone.[14] Significant sodium retention begins within two hours.[7] There are two forms of hydrocortisone commercially available for intravenous use:

(a) Free hydrocortisone in 50 per cent alcohol (packaged in dose of 100 mg. in a 20 cc. ampul). This must be diluted in 500 to 1000 cc. of distilled water or saline solution and given by constant drip.

(b) Hydrocortisone hemisuccinate, a water-soluble form of hydrocortisone, in which form 100 mg. can be given by direct intravenous injection in a 2 cc. volume of fluid.[11]

3. *Other compounds*

I have not employed prednisone and prednisolone in the treatment of acute adrenal insufficiency because of their negligible mineralocorticoid activity as compared to cortisone and hydrocortisone. Fluorohydrocortisone, on the other hand, would exert too great a mineralocorticoid effect in the doses necessary to combat acute adrenal insufficiency. An older intravenous preparation useful in emergency is aqueous adrenal cortical extract administered repeatedly in sufficient dosage.

IV. *Parenteral fluids*

It has been my practice to follow current principles of postoperative fluid administration.[10] Generally, not more than 2000 ml. of fluid per 24 hours is administered. I prefer to use glucose in distilled water rather than in saline solution. Moderate decreases in serum sodium and chloride concentrations were not considered matters of great concern, provided the patient's clinical condition was satisfactory. If sodium chloride was deemed necessary, not more than 1 liter of half-normal sodium chloride solution was given intravenously per day. In general, I preferred letting the patient obtain the salt he needed by mouth, usually when he began to eat. It is worth re-emphasizing that cortisone and hydrocortisone in daily doses exceeding 100 mg. have a significant sodium-retaining or mineralocorticoid effect.[17] This is also the reason for my belief that the administration of DOCA is not necessary when large doses of cortisone or hydrocortisone are employed.

General Therapeutic Scheme for Patients with Acute Adrenal Insufficiency

This is fundamentally the same as outlined in a previous paper[13] for the operative and postoperative management of patients undergoing adrenalectomy. Briefly, the following routine is suggested:

1. Immediate intravenous injection of 100 mg. hydrocortisone hemisuccinate.

2. Follow with slow intravenous drip of 100 mg. hydrocortisone contained in 500 ml. of 5 per cent glucose in distilled water.

3. Concurrently, give 150 mg. of cortisone acetate intramuscularly and subsequently give 50 mg. intramuscularly every four hours around the clock. Thus, a total of 300 to 400 mg. cortisone is given intramuscularly during the first 24 hours.

4. Further intravenous infusions of hydrocortisone during the first 24 hours depend upon clinical response of patient.

5. On succeeding days, gradually reduce the total daily dose of intramuscular cortisone acetate given in spaced multiple injections—for example, 200 mg. on the second day, 150 mg. the third day and 100 mg. the fourth day.

6. Occasionally, the concurrent parenteral use of vasoconstrictors such as norepinephrine is necessary if the patient is in shock and does not respond in a reasonable time.

It is to be remembered that other physicians employ other satisfactory routines, such as the use of intravenous hydrocortisone alone, or the intramuscular use of hydrocortisone hemisuccinate.[2,3,14]

The following case report illustrates some of the principles just discussed:

CASE 2. The patient was a 36-year-old white woman who had had bilateral oophorectomy and adrenalectomy six weeks before for palliation of advanced carcinoma of the breast with metastasis to the brain, chest wall and bones. Maintenance medication consisted of cortisone, 50 mg. daily by mouth and sublingual DOCA, 2 mg. daily. Four days before the present admittance to hospital she became weak, anorexic and complained of generalized aching of the body. Accordingly, the dose of cortisone by mouth was increased to 100 mg. a day. Despite this she became progressively weaker, very restless and complained of severe generalized pains involving the head, left axilla, both flank areas over the sites of incision and the lower abdomen. On the morning of admission to the hospital the temperature rose to 101°F., and she was nauseated. Upon admission to the hospital in the afternoon, she was started on cortisone 50 mg. intramuscularly every eight hours and procaine penicillin 600,000 units intramuscularly every twelve hours. The next morning, there was a temperature spike to 105°F. and the patient went into adrenal collapse. She was bathed in a cold sweat, was intermittently cyanotic, had a thready pulse at a rate of 140 to 160 beats per minute, had Cheyne-Stokes respiration, and appeared lethargic and semicomatose. Upon physical examination an intensely reddened pharynx and follicular tonsillitis were noted. The left posterior auricular and posterior cervical lymph nodes were decidedly enlarged, hot and exquisitely tender. Leukocytes numbered 6,800 per cu. mm. of blood—79 per cent polymorphonuclear cells with 43 per cent stabs.

Emergency measures consisted of the administration of 100 mg. of hydrocortisone contained in 1000 ml. of 5 per cent glucose in distilled water by constant intravenous drip, cortisone by intramuscular injection, 50 mg. every four hours, and large parenteral doses of penicillin and terramycin. During the first 24 hours of therapy, the patient received a total of 200 mg. of hydrocortisone intravenously, 300 mg. of cortisone intramuscularly and 2,000 ml. of 5 per cent glucose in water intravenously. Within 24 hours, there was a decided clinical improvement and the temperature was normal and remained so. The patient recovered and left the hospital in ten days.

This case illustrates the following points:

1. The precipitation of acute adrenal collapse by a severe infection with pronounced systemic manifestations—in this case, acute tonsillitis with accompanying acute lymphadenitis.

2. Typical premonitory symptoms of impending adrenal crisis; that is, intense weakness, apprehension and severe generalized pains.

3. The failure of the oral administration of cortisone to forestall the collapse, despite a doubling of the maintenance dose.

4. Failure to appreciate the significance of the premonitory symptoms of adrenal crisis in time to take adequate measures to prevent collapse; that is, the administration of parenteral glucocorticoids and large doses of antibiotics.

5. The failure to appreciate the lag period in cortisone action after beginning intramuscular administration upon admission of the patient to the hospital. This contributed to the development of adrenal collapse.

6. Finally, the dramatic response to the emergency use of intravenous hydrocortisone supplemented by large doses of intramuscular cortisone.

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Vascular Lesions in Sarcoidosis

Probable Relationship to Steroid Therapy

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REPORTS OF VASCULAR LESIONS occurring in sarcoidosis are seldom seen in the literature.[22] The granuloma is generally accepted as the fundamental lesion of this disease of unknown cause. involving usually several organs and systems. Two cases of proven sarcoidosis presenting localized vascular lesions following steroid therapy were recently observed.

• In two patients with sarcoidosis treated with cortisone, localized vascular lesions, proven by biopsy, subsequently developed. Vascular lesions occurring in sarcoidosis, basically a granulomatous disease, are rarely described. However, a clinical picture of combined arteritis-sarcoidosis with overlapping features is not infrequently observed. Hence clinical differentiation may be difficult. Some observers suggest an interrelationship, perhaps a common etiological grouping in the hypersensitivity disease classification, because of the basic pathological lesions of granuloma and arteritis.

The possible relationship of steroid therapy to the development of diffuse vascular lesions or arteritis appears to be gaining recognition, particularly in the case of susceptible patients with rheumatoid arthritis, although in the two cases here reported the disease for which steroids were administered was sarcoidosis and the arterial lesions observed subsequent to therapy were localized rather than diffuse. Since it seems unlikely that arteritis would be part of the clinical manifestations of sarcoidosis, it is implied that a higher incidence of such lesions (localized or diffuse) may be related to prolonged steroid therapy.

REPORTS OF TWO CASES

CASE 1. A 25-year-old Negro male was admitted to the Veterans Administration Hospital, Oakland, on October 22. 1951. with complaint of fever, cough and a 20-pound decrease in body weight in three weeks.

The patient was well developed and slender. He did not appear to be ill or in any distress. The temperature was 99°F., the pulse rate 104, respirations 20 per minute, the blood pressure 130/74 mm. of mercury. No abnormalities were noted in examination of the heart, the lungs and the abdomen. A few small, firm, discrete supraclavicular nodes were palpable bilaterally. Several papular flesh-colored lesions were noted over the skin of the hips and legs, and a small subcutaneous nodule was palpable over the volar aspect of the left forearm.

Results of a hemogram and urinalysis were within normal limits. The erythrocyte sedimentation rate (Wintrobe) was 55 mm. in one hour. A serological test was negative for syphilis. The protein content was 7.7 gm. per 100 cc. of blood—albumin 4.5 gm. and globulin 3.2 gm. Agglutinations for brucellosis and tularemia were negative; the heterophil antibody titer was 1:14. A Middlebrook-Dubos test was negative for components of mycobacterium tuberculosis. Several specimens of sputum were negative for acid-fast bacilli on concentrated smear, culture and guinea pig inoculation. The reaction to a second strength tuberculin skin test was positive; to a coccidioidin skin test, negative.

A roentgenogram of the chest showed bilateral hilar lymphadenopathy, prominent lung roots and a "fine reticulation" peripherally in the lung fields. Roentgenograms of the skull, sinuses, hands and feet showed no abnormalities. An electrocardiogram showed T-wave inversion through V5 in the chest leads compatible with "juvenile pattern" occasionally seen as a normal variant in young Negro males.

A biopsy of a left supraclavicular lymph node showed reticuloendothelial hyperplasia. but chronic granulomatous lesions compatible with sarcoidosis were noted in the adjacent fatty tissue (Figure 1). Biopsy of a specimen of the liver showed scattered granulomatous lesions consisting of epithelioid cells and a few scattered lymphocytes (Figure 2). No caseation necrosis or giant cells were noted. No organisms were seen in acid-fast stains of these biopsy specimens.

For two weeks the patient had a low grade fever, and the temperature then returned spontaneously to normal. A roentgenogram of the chest taken about two weeks after he entered the hospital showed some progression of the pulmonary disease—an increase in the hilar enlargements and a diffuse nodularity in the peripheral lung fields (Figure 3)—although the patient had become free of clinical symptoms referable to the chest. He was discharged with a diagnosis of sarcoidosis.

On January 22, 1952, the patient was readmitted to the hospital with complaint of right frontal headache, persistent cough, night sweats, fever and chilly sensations. Upon examination of the chest, dullness and crepitant rales over the lung bases were noted. The liver was palpated just below the right costal

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From the Department of Medicine, Veterans Administration Hospital, Oakland 12.

Submitted July 29, 1957 (Revised).

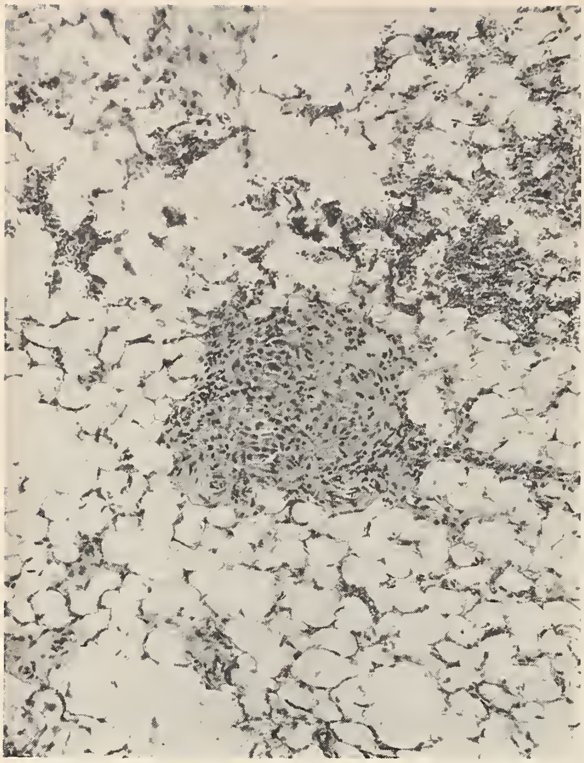

Figure 1.—Granuloma in the perilymphnodal fat tissue (×100).

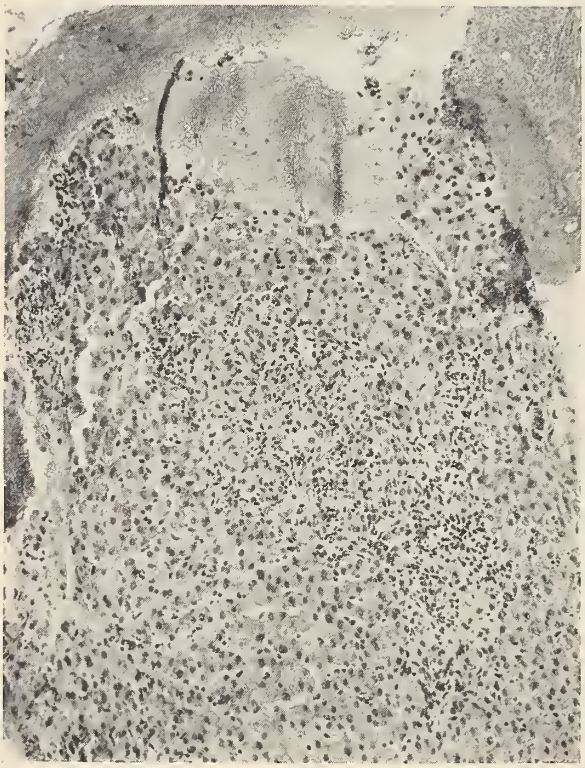

Figure 2.—Granuloma in liver biopsy (×100).

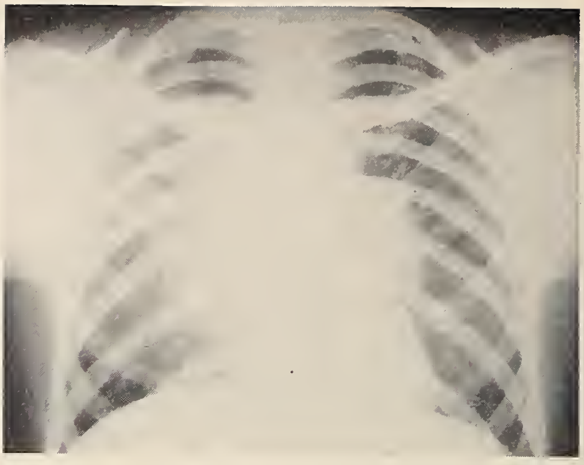

Figure 3.—X-ray film of chest before cortisone therapy.

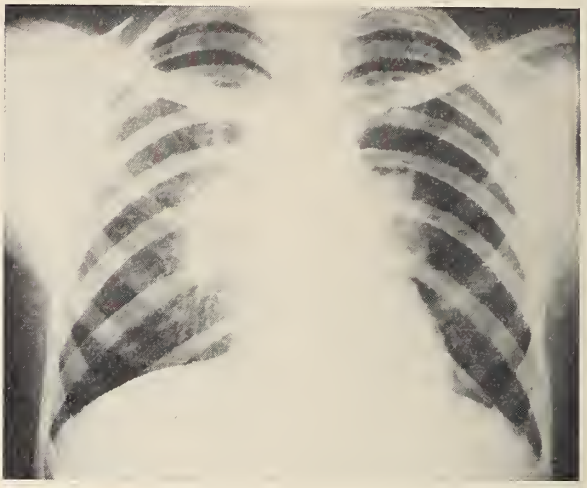

Figure 4.—Same patient as in Figure 3. Improvement following cortisone therapy.

margin on deep inspiration. Slightly enlarged discrete supraclavicular, submandibular, epitrochlear and femoral lymph nodes were noted. The papular flesh-colored skin lesions were again noted over the lower trunk and legs, and a small subcutaneous nodule over the volar surface of each forearm was easily palpable. A roentgenogram of the chest showed essentially the same changes as those observed previously. After a one-week control period for baseline observation, during which a low grade fever persisted, the patient was given cortisone by mouth, 75 mg. every six hours. Pronounced symptomatic improvement and a return to normal temperature occurred within 24 hours. Serial roentgenograms of the chest showed moderate improvement (Figure 4) but the pulmonary lesions were not completely resolved, and after several weeks a static condition was reached.

From an objective standpoint, further improvement was noted in the disappearance of the small subcutaneous nodules over the volar surface of each forearm, shrinkage of all the palpable lymph nodes, disappearance of the abnormal sounds in the lungs, moderate fading of the skin lesions of the lower trunk and legs, maintenance of a normal temperature, and a decrease in the sedimentation rate to a normal range.

The patient was then discharged much improved and was kept under observation on an outpatient status while receiving maintenance cortisone therapy, 25 mg. every 12 hours. In October 1952. cortisone was discontinued, whereupon the scattered papular lesions became more prominent on the skin of the extremities and a roentgenogram of the chest showed a slight increase in the miliary densities previously noted. Coughing began again and mild exertional dyspnea was noted. The patient had moderate stiffness about the knees, and body weight decreased 15 pounds. He was readmitted to the hospital on January 23, 1953 and cortisone therapy, 75 mg. every six hours, was resumed. Symptomatic improvement and slight regression of the skin lesions occurred. Again the patient was discharged from the hospital, and cortisone, 25 mg. three times a day, was prescribed. A roentgenogram of the chest on May 1, 1953, showed a decrease and moderate clearing of the fine pulmonary densities. On November 12. 1953, cortisone was again discontinued. The patient remained well for several months and chest roentgenograms taken during that time showed no progression of the disease.

In January 1954, two months after cortisone was discontinued, the patient noted on the medial aspect of the right thigh a small lump which kept growing larger and firmer and was decidedly tender but not painful. He was readmitted to the hospital for further observation. Upon physical examination, he was afebrile. A few fine faint moist inspiratory rales were heard over the right lung base. There was no enlargement of lymph nodes, no abdominal masses or enlargement of organs. Skin lesions as described previously were still present over the trunk and lower extremities. Along the inner and upper aspect of the right thigh was a distinctly tender subcutaneous mass about 4 cm. in diameter. No abnormalities were noted in a hemogram and urinalysis. The erythrocyte sedimentation rate (Wintrobe) was 33 mm. in one hour. Fasting blood sugar, urea nitrogen, calcium, phosphorus and protein determinations were all within normal range. Gamma globulin content was 1.44 gm. per 100 cc. Results of liver function studies, including serum bilirubin. cephalin flocculation, thymol turbidity, bromsulfalein retention and prothrombin time, were within normal limits. A roentgenogram of the chest showed slight regression of the previously described pulmonary densities and hilar enlargements. No abnormalities were seen in roentgenograms of the skull, hands and feet. An electrocardiogram showed no change. On March 18, 1954, the tender mass in the thigh was surgically removed. Upon pathological examination. the specimen was observed to consist of skin and subcutaneous fat and on cut section there was diffuse fibrosis of the subcutaneous tissue. Microscopic examination showed not only a widespread granulomatous reaction (Figure 5) but also periarteritis.

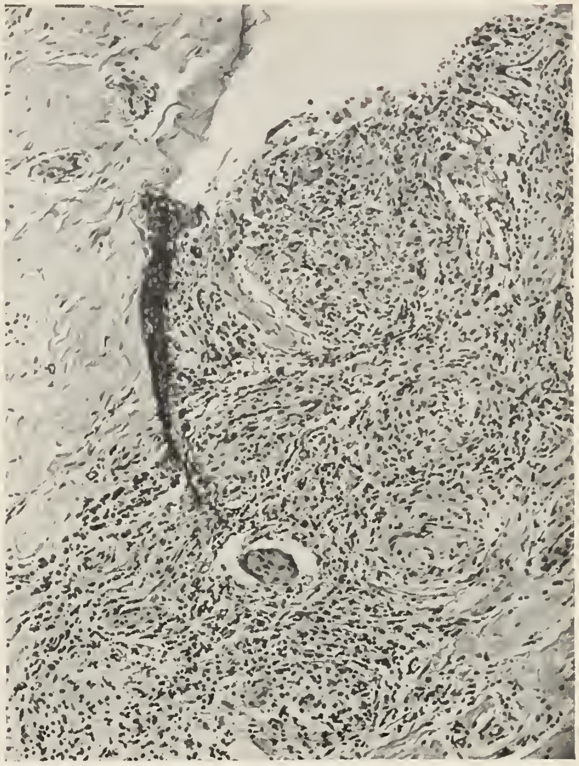

Figure 5.—Granulomatous reaction in mass excised from thigh (×100).

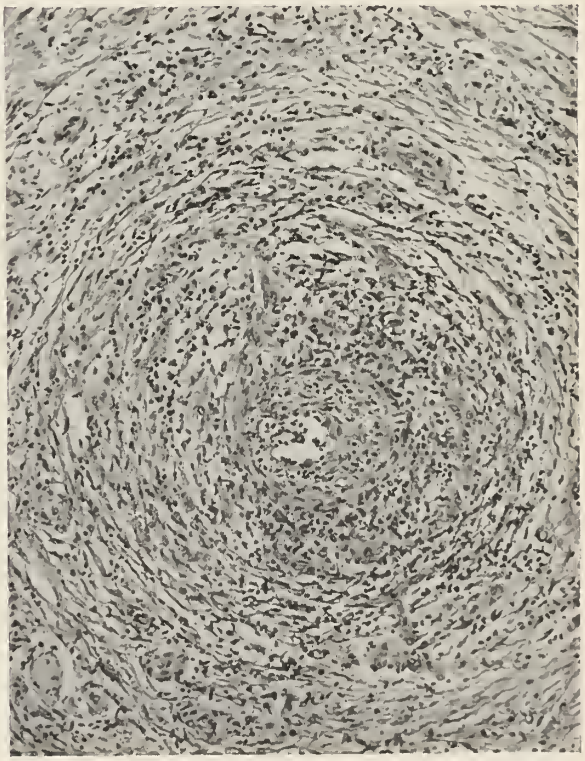

Figure 6.—Periarteritis changes in mass excised from thigh (×200).

In and about the walls of small arterial blood vessels were noted edema and infiltration with lymphocytes and polymorphonuclear cells; and in some instances there was almost complete obliteration of the lumen of the vessels (Figure 6). These changes were interpreted as being compatible with periarteritis and/or obliterative vasculitis and sarcoidosis. Previous biopsies, including the supraclavicular lymph node and liver were reviewed by the staff pathologist and the changes observed in all of them were thought to be compatible with sarcoidosis. The patient was again discharged and kept under observation as an outpatient. Cortisone was not given. When last observed, December 2, 1954, he was asymptomatic. All the skin lesions were almost completely gone and a roentgenogram of the chest showed considerable clearing of both the small pulmonary infiltrations and hilar enlargements.

CASE 2. A 25-year-old Negro male was admitted to the eye service of the Oakland Veterans Administration Hospital on April 6, 1954, for treatment of chronic active iridocyclitis of the right eye. Two weeks later, he was transferred to the medical service with a diagnosis of sarcoidosis. The patient said that about two years previously, while he was on military duty in Alaska, his right eye became red and painful and vision diminished. He was put in hospital and was treated with penicillin, hydrocortisone, "dilators" and ointments, which relieved the pain but not the redness or impairment of vision. Because a roentgenogram of the chest showed "spots," he was transferred to another ward for observation for sarcoidosis. He said he had not had symptoms referable to the chest. An incidental finding at the hospital in Alaska was a positive serological test for syphilis. The patient denied any previous knowledge of infection. A spinal puncture, bone marrow aspiration and removal of a lymph gland from the neck were carried out. Treatment presumably helped the "spots" in the lungs; but the condition of the right eye was only partially improved, redness and poor vision persisting. The patient was then transferred to Fitzsimmons General Hospital in Denver, where for the first time the examining physician noted some subcutaneous nodules in all the extremities, as well as "bumps" on the skin of the trunk and extremities. The patient was studied extensively over a period of the next 14 months and was given a medical discharge because of the condition of the right eye and sarcoidosis. He received cortisone and corticotropin (ACTH) for approximately three months afterward, but treatment was discontinued in December, 1952.

Some of the special studies done at Fitzsimmons included a liver biopsy, muscle biopsy, removal of a nodule from the right forearm, skin tests and many roentgenograms. The patient was told that the "spots" in the lungs had cleared. While he was receiving steroid therapy, he noticed nervousness, shakiness of the hands and occasional mild chills, which were considered peculiar side effects of the hormones. However, the subcutaneous nodules and skin "bumps" regressed considerably.

One evening in December, 1952, after taking a shower, the patient had a severe shaking chill followed by a high fever. The next morning on arising he noted a tight tender feeling in both calves, which persisted and constituted one of the chief complaints at the time of admittance to the Veterans Administration Hospital in Oakland. The tightness and tender feeling over the calves were most noticeable in the morning on arising but would diminish after he had been on his feet for a while or after massage of the calf muscles. The patient was not certain whether the lumps had increased in size, but he said he believed the size of the calves had increased. The condition of the right eye had not improved although after discharge from the service he continued to receive outpatient treatment at the Veterans Administration outpatient department in San Francisco. It was there that, because of the lack of improvement, he was referred to the Oakland hospital for further study and treatment.

The patient was tall, slender and well developed. He did not appear to be ill or in any distress. The temperature was 98.6°F., the pulse rate 84; respirations 18 per minute and blood pressure 128/82 mm. of mercury. A few small papular lesions were noted on the skin over the elbows, forearms, back of the legs, anterior chest, lower back, the chin and cheeks. Tender irregular masses were palpated in the calves of the legs apparently in the subcutaneous tissues. A few small palpable posterior cervical, axillary, epitrochlear, inguinal and femoral lymph glands were present. The spleen and liver were not palpable. No abnormalities of the heart or lungs were noted.

A hemogram, urinalysis and erythrocyte sedimentation rate were all within normal limits. A serological test for syphilis was positive. The total protein content of the blood was 7.8 gm. per 100 cc.—albumin 4.6 gm. and globulin 3.2 gm. The gamma globulin content was 900 mg. per 100 cc. The result of a Middlebrook-Dubos test was negative. Liver function tests showed no abnormality. The contents of cells and protein in the spinal fluid were within normal limits and the result of a Kolmer test was negative for syphilis. An electrocardiogram showed no abnormality.

In a roentgenogram of the chest on April 7, 1954, the cardiac shadow was normal. The roots of the lungs were "heavy" and there was a considerable increase in markings at the bases, particularly the right, suggesting bronchiectasis or bronchitis (Figure 7). Roentgenograms of the hands and feet showed some osteoporosis and coarsening of the reticulations of the bones, which was thought to be consistent with sarcoidosis. No abnormality was observed in a roentgenogram of the skull. A review of previous roentgenograms of the chest was described as follows: "Study of the chest dated August 23, 1952, shows gross nodular enlargement of both lung roots, with very pronounced paratracheal enlargement to the right and parahilar enlargement bilaterally. There is a fine, linear, nodular fibrosis throughout both lungs, arranged in parahilar distribution. Subsequent studies show little change until November 8, 1952, when slight clearing was noted,

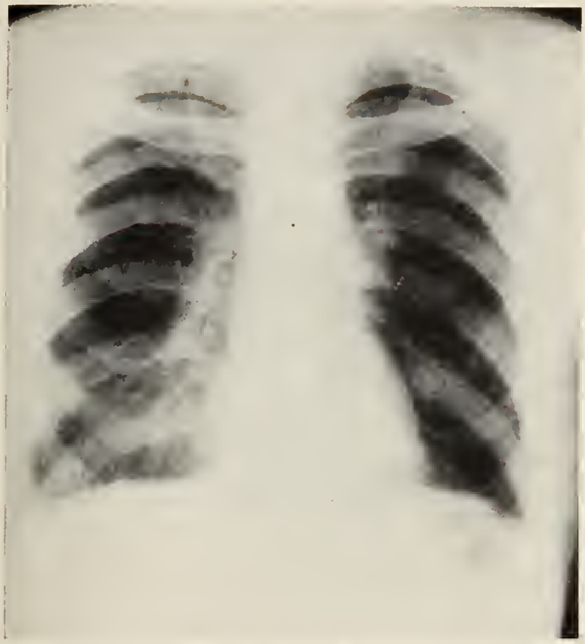

Figure 7.—Heavy lung roots and increased markings right base.

but hilar enlargement and slight pulmonary fibrosis persisted. On August 10, 1953, pleural thickening had developed in the left base with some faint exudation in both lung bases. The hilar nodes, however, had decreased considerably. On September 25, 1953, pleural thickening was seen in both bases with increased lung markings, but there was further regression of the hilar nodes. The findings are consistent with sarcoidosis. although the possibility of a lymphoma is not entirely excluded on the basis of roentgenograms."

The muscle biopsy which had been performed at Fitzsimmons General Hospital was reviewed by the staff pathologist and the description was that of skeletal muscle showing varying degrees of degeneration and fibrosis. The fibrous tissue was dense and contained several irregular tubercles composed of epithelioid cells and lymphocytes. Some of the tubercles showed foreign body type giant cells. The diagnosis was that of degenerating skeletal muscle compatible with sarcoidosis.

On May 15. 1954, one of the subcutaneous masses from the left calf was excised and microscopic examination showed several areas of scar tissue within skeletal muscle containing epithelioid tubercles with multinucleated foreign body type giant cells and dense infiltrate with plasma cells and lymphocytes (Figure 8). In these areas, occasional arteries could be seen in which there was an obliterative type of endarteritis (Figure 9). The arterial walls were thickened and edematous, but showed no evidence of inflammation or necrosis (Figure 10). Away from the area of fibrosis within the muscle itself, infiltrates more typical of sarcoid lesions could be seen. In these areas the tubercles were well formed, quite dense, and showed relatively little lymphocytic infiltration. The impression was that of voluntary muscle tissue showing lesions compatible with sarcoidosis and obliterative endarteritis.

While the patient was undergoing the various diagnostic studies, he continued to receive treatment for iridocyclitis. mainly in the form of atropine and hydrocortisone eye drops, and hydrocortisone orally, 10 mg. three times a day. Eventually, with the completion of studies and improvement in the ocular symptoms, he was discharged for follow-up care to the Veterans Administration outpatient department in San Francisco.

HISTORICAL AND HISTOPATHOLOGICAL FEATURES

Although the cause of sarcoidosis remains obscure, the disease has received recognition as a well-defined clinical entity. Historically. some confusion has resulted from the variety of designations for the disease, but in general the many observers and investigators who have reported upon it have helped to increase the knowledge and understanding of this condition.

The skin lesions of sarcoidosis were first described by Hutchinson in 1875 and again in 1898. In the later report he used the term "Mortimer's malady," after one of his patients, although nine years previously Besnier had referred to the disease as "lupus pernio." In 1889, Boeck first gave an accurate pathological description of the skin lesions and his name has since been closely associated with the disease. Heerford in 1909 first described the uveoparotid involvement. In 1914, Schaumann made his classical contribution by recognizing Boeck's sarcoid and Besnier's "lupus pernio" as the same disease, and, noting the more widespread lymphatic and visceral involvement, gave it the name *lymphogranuloma benigna.* In 1915, pulmonary lesions were described by Kutzinsky and Bittorf; bony lesions, by Jungling in 1919; and hepatic and gastrointestinal involvement by Kissmeyer in 1932. In 1936, Hunter[9] used the term *generalized sarcoidosis* and provided a very thorough historical review of the subject. Similarly interesting and comprehensive reviews were written by Freiman,[6] Longcope and Freiman[14] and Middleton.[16]

The disease has a world-wide extent but the exact incidence is difficult to ascertain. In this country, in a survey of over eight million inductees to the armed forces, 226 cases were noted, or 2.74 per 100,000. An epidemiological study of these cases by Michael and co-workers[15] revealed a higher incidence in Negroes, in the southeastern part of the United States, and in rural areas—suggesting that geographical as well as racial factors play a part.

The problem of a disease of unknown cause has naturally brought forth many and varied etiologic theories. Any disease or agent capable of producing a diffuse granulomatous reaction has at some time or other suggested a possible cause for sarcoidosis.

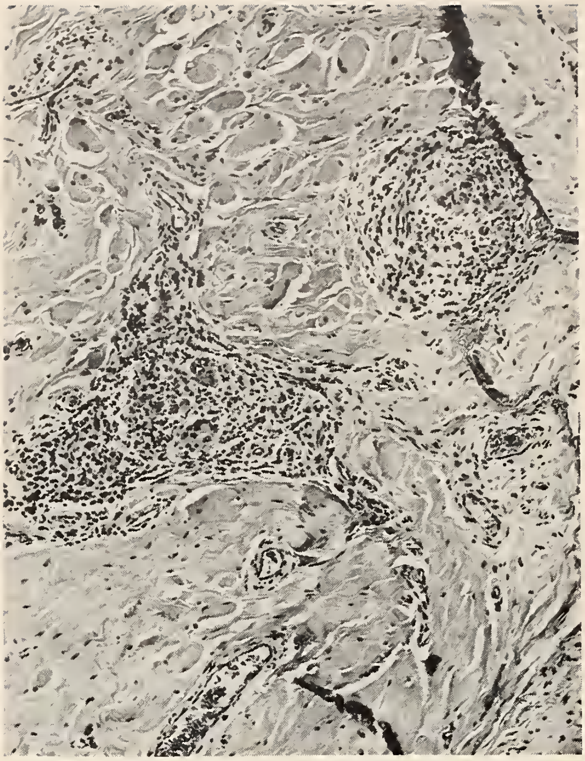

Figure 8.—Granuloma in excised subcutaneous mass, left calf (×100).

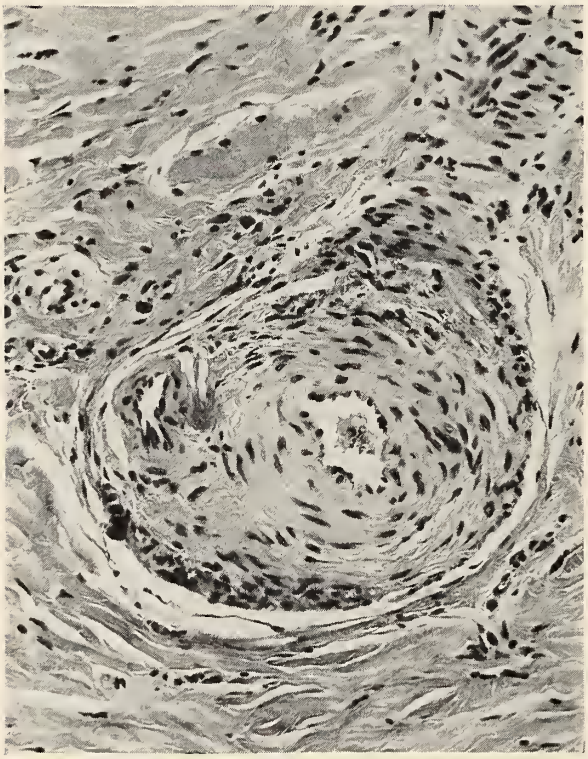

Figure 10.—Endarteritis of obliterative type in excised subcutaneous mass, left calf (×200).

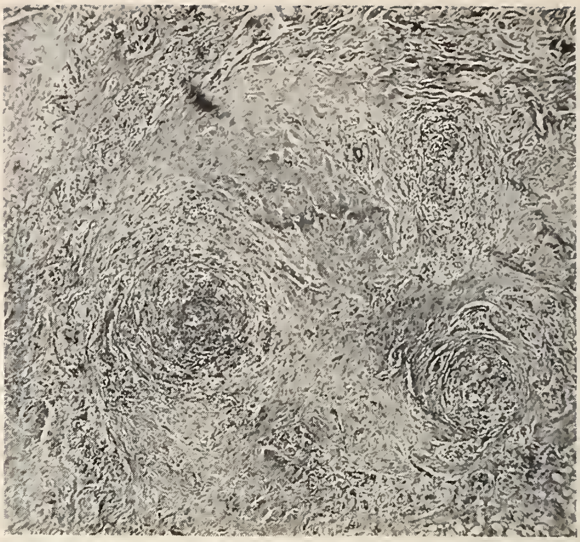

Figure 9.—Granuloma and obliterative endarteritis in excised mass, left calf (×50).

The disease most discussed remains tuberculosis, and one rather widely credited concept is that sarcoidosis is an aberrant form of tuberculosis. Observers who lean to this theory emphasize the high incidence of tuberculosis occurring at one stage or another in patients with sarcoidosis; and they attribute the usual negative tuberculin skin test in sarcoidosis to an anergic phase of tuberculosis. Stronger arguments against this relationship are made by investigators who find no proof by cultural or immunological techniques, and point out the differences in the microscopic appearance of the basic granulomatous lesion in the two diseases, not only in the active forms, but in the progression or healing phase. The sarcoid tubercle retains its shape and size even with healing by hyalinization and does not fuse, whereas the acid-fast tubercle usually loses its original configuration and frequently fuses. Such features as caseation and necrosis are seldom seen in sarcoidosis but are quite prominent in tuberculosis. Predilections for certain organs also vary with the two diseases. Involvement of the myocardium is not unusual in sarcoidosis but is rare in tuberculosis. On the other hand, involvement of serous surfaces and adrenal glands is common in tuberculosis, rare in sarcoidosis. Other infectious diseases provoking discussion with regard to possible relationship to sarcoidosis are brucellosis, leprosy, leishmaniasis and syphilis, as well as various yeasts, fungi and viruses, particularly lymphogranuloma inguinale. The similarity of lung lesions in sarcoidosis to those that occur in workers exposed to beryllium compounds has also suggested a relationship. From a nosological standpoint, some investigators feel that the disease is not infectious but is properly classified in the lymphomatous group. Still others support an allergic or hypersensitivity concept which also takes into consideration the diffuse collagen diseases.

The basic lesion in sarcoidosis is the tubercle or granuloma, single or multiple, consisting of large pale epithelioid cells and permeated with a fine reticulum, with few, if any, surrounding lymphocytes, neutrophils or eosinophils, usually grouped about small blood vessels or lymphatics. Multinucleated giant cells are usually present and may contain nonspecific inclusion bodies. The sarcoid granuloma may remain unchanged for years, may completely resolve and disappear, or may undergo fibrosis and hyalinization without any appreciable change in its original size and configuration. Any organ may be involved, but those most commonly invaded are lymph nodes, lung, liver and spleen. Although skin lesions first attracted attention to this disease, the skin is involved in only about 16 per cent of cases.

Laboratory studies show little in the way of significant abnormalities except for hyperglobulinemia with or without an increase in the total serum proteins, reflected primarily in the gamma globulin fraction as shown in electrophoretic studies. Elevation of serum calcium content has been noted in some cases.

Roentgenograms of the chest probably are the greatest clinical aid in first directing suspicion and ultimately leading to diagnosis of this disease. The usual roentgen findings are those of hilar and/or paratracheal lymphadenopathy with or without parenchymal involvement. The latter may consist of irregular infiltrations, diffuse pulmonary nodulations varying from 3 to 5 mm. in diameter, or disseminated miliary lesions of about 1 mm. in diameter.

The Kveim reaction or skin test as a diagnostic aid is limited by the fact that it is nonspecific, requires three to six months to read, and could be quite painful by producing a necrotic, slowly healing skin lesion. Although the correlation of positive reactions is high in proven cases, negative reaction sometimes occurs, especially in cases in which the skin lesions have healed or the disease has ceased to progress. More disconcerting is the fact that antigen from normal spleens may produce the same results as the Kveim antigen obtained usually from skin lesions, lymph nodes and spleens from patients with proven sarcoidosis.

Biopsy of a palpable lymph node or skin lesion, if present, remains the most positive method of diagnosis. If such lesions are not present, needle biopsy of the liver, excision of a prescalene lymph node or biopsy of a voluntary muscle may be helpful. In some instances, diagnosis remains one of exclusion.

The disease usually runs a chronic low-grade course over a period of years. Death is usually the result of pulmonary fibrosis and/or cardiac insufficiency, although extensive localization in vital areas such as the heart, brain, kidney and liver[1] may cause death earlier.

Until the advent of cortisone and related compounds, there was very little to offer in combating this disease. Israel and co-workers[10] emphasized that cortisone therapy should not be used in mild or asymptomatic cases. Therapy is indicated particularly for patients who are threatened with respiratory or renal insufficiency, or with visual impairment (uveitis), or who have severe skin lesions, hepatosplenomegaly, or myocardial involvement. The necessity for making certain tuberculosis is not present before instituting therapy is stressed because of the recognized adverse effect of cortisone on this disease. In this regard, it should be noted that the beneficial response to cortisone permits a certain inference to be drawn—namely, that failure of tuberculosis to become manifested in cortisone-treated patients with sarcoidosis is reasonably good evidence against the tubercle bacillus as being a part of, or an etiologic factor in the disease. However, other clinicians feel that active tuberculosis may develop in some patients with sarcoidosis who are receiving steroid therapy, and that they should be carefully observed for this with repeated skin testing (if originally negative), roentgenograms of the chest and examinations of sputum.

DISCUSSION

The two cases reported herein are thought to be unusual in that the patients had proven sarcoidosis and, in addition, vascular lesions. This pathological change is seldom mentioned in the literature on sarcoidosis. Watjen[22] reported a case of sarcoidosis in which at autopsy the lesion typical for the disease was observed in many sites, particularly the lungs, and also striking vascular lesions resembling periarteritis nodosa in the striated musculature of the lower extremities. Watjen also referred to another case, reported by Staehelin,[21] in which three different pathological processes occurring in one patient were described—namely, nonspecific inflammation, granulomata with epithelioid and giant cells, and, finally, lesions resembling those of periarteritis nodosa. Although Staehelin had the impression that the three processes in that case were all related in one and the same pathologic menage, he expressed the opinion that the vascular changes were quite atypical and rare for Boeck's disease, and therefore constituted an independent process superimposed or added to the Boeck's disease. Watjen, however, felt that the two processes were interrelated.

Jackson and Kass[11] reported on five cases of periarteritis nodosa and one of sarcoidosis, proven by biopsy, and emphasized certain clinical and histopathological similarities in the two diseases which could actually be different stages of the same disease entity. They suggested *hypersensitivity granuloma,* acute or chronic, perivascular or extravascular, as a suitable name for the disease. A similar concept was advanced by Whitmore,[25] who described the case of a young Negro male with chronic leg ulcers and leg pains. A biopsy of an indurated area of the left calf musculature showed changes compatible with both periarteritis nodosa and sarcoidosis. The subject of extravascular lesions in periarteritis nodosa was dealt with in a communication by Churg and Strauss,[3] and the relationship of other hypersensitivity manifestations such as erythema nodosum appearing in sarcoidosis was described by Katsman.[12]

More recently, Hall[8] reported a case in which features of both diseases were present. The patient was a 36-year-old Negro woman with complaint of fever, loss of weight, skin lesions of the hands and legs, cough, exertional dyspnea and redness of the left eye. The skin lesions were raised, circular and tender. The changes in the eye were those of uveitis characteristic for sarcoidosis. A roentgenogram of the chest showed right hilar nodular enlargement. Fever, anemia and accelerated sedimentation rate were also present. Biopsies of the nodular skin lesions were compatible with periarteritis nodosa and a right supraclavicular lymph node biopsy showed noncaseating tubercles compatible with sarcoidosis.

Zeek,[26] in attempting to clarify the problem of vascular disease, suggested *necrotizing angiitis* as a generic term, with five major subdivisions: (1) Hypersensitivity angiitis resulting from hypersensitivity to serum, sulfonamides and drugs; (2) allergic granulomatous angiitis as seen in patients presenting clinical evidence of asthma and other allergic states with bouts of fever and eosinophilia; (3) rheumatic arteritis as seen in patients with fulminating rheumatic fever; (4) periarteritis nodosa as applied to the "multiple system disease" with features of polyneuritis and hypertension; and (5) temporal arteritis, a more benign condition manifested by pain and tenderness over the temporal arteries, accompanied by fever, malaise and anorexia.

Another clinical syndrome or disease that has become prominent in recent years is Wegener's granulomatosis, which embraces both granulomatous and vascular lesions. In 1936, Wegener[23,24] first described a disease manifested by respiratory tract granuloma, diffuse angiitis and necrotizing glomerulitis. Two similar cases reported in the case records of the Massachusetts General Hospital[2] demonstrated the difficulty in clinical differentiation from sarcoidosis. Fahey and co-workers,[4] and Godman and Churg[7] in adding their seven cases of Wegener's granulomatosis to the 22 previously reported cases, described the clinical syndrome as usually beginning with severe destructive sinusitis and/or rhinitis, then persistent pneumonitis accompanied or followed by signs of renal damage and generalized vasculitis. The illness ends fatally, with arteritis or uremia dominant at the time of death. The essential pathological findings include necrotizing granulomatous lesions in the respiratory tract and generalized focal necrotizing vasculitis and glomerulitis. These clinical and pathological features should help to differentiate this entity from other vascular and granulomatous diseases. The cause remains unknown but a state of hypersensitivity is strongly suggested by the presence of such pathological lesions as granuloma, vasculitis and glomerulitis, each of which may be found in other hypersensitivity states or diseases.

It was noted in the two detailed case reports that the vascular lesions were apparently evidence of localized rather than diffuse pathologic change and that both patients had received steroid therapy before the development and diagnosis of the vascular lesions. This raises speculation as to a cause and effect relationship. By injecting a corticoid hormone (desoxycorticosterone acetate) into rats which had previously had unilateral nephrectomy, Selye and Pentz[18] produced nephrosclerosis with hypertension and lesions resembling periarteritis nodosa, thromboangiitis obliterans and rheumatic fever. Autopsy of the experimental animals on the 27th day showed many reddish nodules along the course of the mesenteric blood vessels which on microscopic examination showed changes strikingly similar to those seen in cases of periarteritis nodosa in humans. Similar vascular changes were seen in the pancreas and kidney. Pathological changes resembling the Aschoff nodules of rheumatic fever were noted in the myocardium, and lesions of malignant nephrosclerosis were noted in the kidneys. Subsequently, Selye and Bois[17] brought about similar changes (periarteritis nodosa and malignant nephrosclerosis) in a primate animal more closely related to man, namely the rhesus monkey, using a potent synthetic mineralcorticoid, 2-methyl-9 (alpha) fluorocortisol (ME-F-COL).

Sheldon,[19] in summarizing the dangers of steroid therapy, stated there is suggestive evidence that vascular lesions resembling periarteritis nodosa may be produced. Finck[5] reported a case of a 44-year-old man with chronic arthritis who took large doses of cortisone (300 mg. daily) for six months without medical supervision. He died in a shock-like state and at postmortem examination a diffuse necrotizing arteritis was observed.

In describing the effects of cortisone withdrawal on arthritic patients, Slocumb[20] cautioned against the appearance of panmesenchymal reaction which might simulate a rheumatoid flare-up, disseminated lupus or periarteritis nodosa. A recent elaborate follow-up on Slocumb's observation was made by Kemper and co-workers,[13] who made a study of autopsies in 52 cases of rheumatoid arthritis and found that in four of 14 patients who were treated with cortisone, generalized lesions of periarteritis nodosa developed, whereas such lesions did not develop in any of 38 patients who did not receive cortisone, suggesting that in certain susceptible patients with rheumatoid arthritis receiving cortisone a diffuse necrotizing arteritis may develop.

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Diseases of the Heart in a Working Population

A Study of Morbidity and Mortality in Relation to Cardiac Status and Nature of Job

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• A sample consisting of 2,252 persons among 20,199 Los Angeles civil service employees was observed for the occurrence of heart disease. The first examination measured the prevalence. Based upon the diagnosis of 165 cases of heart disease, the prevalence was 73 per 1,000 persons examined.

Two reexaminations, at intervals of 12 to 18 months, of persons with normal heart on the first examination were carried out and 52 additional cases were diagnosed. There were also 13 deaths of heart disease in persons first diagnosed as having normal heart, making a total of 65 "new" cases (36.6 per 1,000) during the 30-month period of observation. An annual estimated heart disease incidence of 15 per 1,000 appears reasonable.

Based on 89 deaths, the cardiovascular disease death rate was 11 per 1,000 among persons entering the study with normal heart, and 133 per 1,000 persons diagnosed as having heart disease at entry. The ratio of newly diagnosed cases to deaths of heart disease was 4 to 1.

Among men diagnosed as having normal heart there was little difference in death rates whether their jobs were physically strenuous or sedentary. Among the men with heart disease, however, the highest death rates are observed among those employed at sedentary jobs and at light exertion. This may, of course, be an indication of the employee's selection of the job rather than the effect of inactivity. The relative usefulness of minifilm x-ray, electrocardiograms and questioning as to history were considered.

THE DEVELOPMENT AND USE of prophylactic and therapeutic agents and the application of modern principles of sanitary science have changed the relative importance of public health problems. The proportion of all deaths in California caused by selected common communicable diseases declined from 30.3 per cent in 1910 to 4.2 per cent in 1954. During the same period the proportion of deaths caused by selected chronic diseases increased from 36.8 per cent to 72.5 per cent. Diseases of the heart caused 13.2 per cent of all deaths among residents in California in 1910 and 38.4 per cent in 1954.[1]

Health departments, through the use of biostatistics, epidemiology, and case-finding techniques, have made substantial contributions to the prevention and control of infectious diseases. Similar contributions can be made in community control of noninfectious diseases. The responsibility of the health department to define the infectious disease problems, to take energetic preventive and control measures, and for rehabilitation in some instances, is generally accepted. The necessary staff services for the control of infectious diseases have been recognized by state health departments and many local health departments and by their respective money-appropriating bodies. These same skills can be applied to the study and control of heart disease and other chronic illness.

In summarizing a recent symposium on coronary heart disease, Dr. James Watt, director of the National Heart Institute, remarked: "Health departments, by their very nature, collect, analyze and put to use information on health and disease. They are the logical sites for building population studies. I think we will see many other health departments embarking upon epidemiological studies of chronic diseases in the near future.[5]

A primary step in the consideration of a community heart disease control program is the continuous study of the time, place and conditions of occurrence of heart disease in the population. Special attention can then be directed to high-risk groups and high-incidence areas.

A study of diseases of the heart among 20,199 Los Angeles City employees was begun by the City Health Department in 1949 with the cooperation and assistance of the State Health Department, Public Health Service and voluntary agencies. A random sample of 2,252 employees, stratified by age and sex, was chosen for examination. Alternates were selected for persons who refused to participate or were otherwise unavailable for study. The age, sex and racial composition of the population studied has been previously described.[2,4] (Table 1.) Each of the 2,252 persons was given a cardiac examination be-

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Presented before the Section on Public Health at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

TABLE 1.—*Composition of Population Studied, According to Age, Sex and Race*

Age at Start of Study	All Persons	Male				Female			
		Total	White	Negro	Oriental	Total	White	Negro	Oriental
Under 20	4	....	....	....	....	4	3	1	....
20 to 29	368	273	198	74	1	95	71	17	7
30 to 39	554	461	359	99	3	93	82	10	1
40 to 49	554	447	382	61	1	107	102	5	....
50 to 59	538	462	413	49	....	76	74	2	....
60 to 69	231	213	197	16	....	18	17	1	....
70	3	3	3	....	....	....	....	....	....
Total	2,252	1,859	1,552	302	5	393	349	36	8

TABLE 2.—*Change of Status of Patients Between First and Third Examination*

Index Examination Diagnoses	Number Patients	Third Examination Status				
		Normal Heart	Potential or Possible Heart Disease	Heart Disease	Dead	Withdrew
Normal heart	2,007	1,652	46	52	27	230
Potential or possible heart disease	80	30	26	8	2	14
Heart disease	165	11	18	95	14	27
Totals	2,252	1,693	90	155	43	271

tween December 1949, and July 1951. The subjects were reexamined twice by the same physicians at intervals of approximately 12 to 18 months, utilizing the methods and criteria for diagnosis established by the New York Heart Association*.[3] Of the 2,252 persons who entered the study, 2,069 (91.0 per cent) received the second examination between July 1951 and September 1952, and 1,938 (86.1 per cent) were given a third examination between September 1952 and January 1954. The average interval between the first and third examination was 30 months.

The examination included a questionnaire as to history, physical examination, thoracic fluoroscopy, an electrokymogram, a 12- or 13-lead electrocardiogram, a 70 mm. photofluorogram, vital capacity determination, urinalysis, complete blood cell count, sedimentation rate, hematocrit, serologic test for syphilis, and serum cholesterol and blood sugar determination. The methods and results of the index examination of the study population have been previously published.[4]

Prevalence of Heart Disease

The first examination measured the prevalence of heart disease in the group studied. Of the 165 cases diagnosed, 147 were in males (79 per 1,000) and 18 in females (41 per 1,000). The cardiac conditions most frequently noted at this index examination were hypertensive heart disease (43 per 1,000), coronary heart disease (24 per 1,000), and rheumatic heart disease (10 per 1,000).

Incidence of Heart Disease

Reexamination of the group led to the discovery of new cases of heart disease among those diagnosed as having normal heart in the first examination. Of the 2,007 persons initially classified as having normal heart, 27 died and 230 withdrew from the study before the third examination (Table 2). Of the remaining 1,750 persons diagnosed as having normal heart on the index examination, 52 (29 per 1,000) were newly classified as having disease of the heart. Before the third examination there were 13 known deaths with cardiovascular disease stated as the cause among the group who at the first examination had been classified as having normal heart. Accordingly, the ratio of newly diagnosed cases to cardiovascular disease deaths in this group was 4 to 1 (52 to 13). The 52 new cases included 25 cases diagnosed as coronary disease, four cases of coronary and hypertensive heart disease, ten of hypertensive heart disease, eight of rheumatic heart disease and five diagnosed as heart disease of other cause or of unknown cause. The 52 cases newly diagnosed on the third examination plus the 13 cases "discovered" by death make the incidence 36.6 per 1,000 for the 30-month period of risk. At a constant risk, an annual estimated heart disease incidence of 15 per 1,000 appears reasonable for this population.

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*Nomenclature used in this report is based upon the standard nomenclature in use at the time of the examination.

TABLE 3.—*Death Rates According to Clinical Status at First Examination*

Entrance Examination Status	Number Persons	Total Deaths* No.	Total Deaths* Rate per 100	Cardiovascular Deaths* No.	Cardiovascular Deaths* Rate per 100
Heart Disease:					
Coronary	29	9	31.0	7	24.1
Coronary and hypertensive	26	4	15.4	3	11.5
Hypertensive heart disease	67	10	14.9	9	13.4
Other heart disease	43	5	11.6	3	7.0
Totals	165	28	17.0	22	13.3
Normal heart	2,007	56	2.8	23	1.1
Potential or possible heart disease	80	5	6.3	4	5.0
Totals	2,252	89	4.0	49	2.2

*To Dec. 31, 1955 (4 to 5 years after first examination).

TABLE 4.—*Death Rates in Men According to Physical Exertion Demands of Occupational Class and Cardiac Status*

Physical Exertion Class	Normal Heart No. at Risk	Normal Heart Deaths	Normal Heart Rate (Per Cent)	Heart Disease No. at Risk	Heart Disease Deaths	Heart Disease Rate (Per Cent)
Sedentary	189	1	0.5	14	5	35.7
Light	659	27	4.1	56	12	21.4
Medium	480	10	2.1	39	7	17.9
Heavy	295	11	3.7	34	4	11.8
Unknown	30	1	3.3	4	0	0.0
Totals	1,653	50	3.0	147	28	19.0

TABLE 5.—*Cardiovascular Abnormality by Minifilm X-ray, Electrocardiogram, and History*

	Diagnosis					
	Heart Disease		Possible or Potential Heart Disease		Normal Heart	
Number persons	165		80		2,007	
Technique	Number	(Per Cent)	Number	(Per Cent)	Number	(Per Cent)
X-ray, Reader A	109	66.1	35	43.8	544	27.1
X-ray, Reader B	76	46.1	17	21.3	262	13.1
X-ray, A and B	73	44.2	13	16.3	191	9.5
Electrocardiogram	120	72.7	40	50.0	249	12.4
History*	73	44.2	19	23.8	331	16.5

*On basis of reply to: "Have you noticed increasing or undue shortness of breath with exertion?"

Death Rate

Continued observation of this sample includes a study of deaths occurring in the entire group. Table 3 summarizes mortality through 1955. A total of 89 deaths occurred to December 31, 1955, of which 49 (56 per cent) were caused by cardiovascular diseases. The cardiovascular disease death rate was 1.1 per 100 persons who at the start of the study had "normal heart"; and it was 13.3 per 100 persons diagnosed as having heart disease at the first examination. It was noted, however, that the persons with normal heart were younger than those with heart disease, and age as well as diagnosis is an important factor in the observed differences in the death rates. Of the 89 deaths, 35 were caused by coronary arteriosclerotic heart disease. Of the deaths from coronary artery disease, 26 occurred during the 30-month interval between the first and third examinations, 20 in persons diagnosed as having "normal heart" at the start of the study and six in persons with diagnoses of coronary disease at the outset. In other words, complete cardiac examination detected coronary disease in only six of the 26 persons who died of this disease within 30 months. Of the 35 persons in the study group who died up to the end of 1955, eight had heart disease diagnosed at the time of the first examination and 27 had no evidence of cardiac abnormality.

Heart Disease in Occupational Groups Classified According to Physical Exertion

The group studied was composed of employees in 399 civil service job classifications and there were a very few in some classifications, many in others. The range was from one cook-housekeeper, one councilman, one astronomer and two blacksmiths to

176 maintenance laborers. Each of 163 job classifications had a single employee in the study population and 48 had ten or more, including four jobs which contributed more than 50 persons to the random sample. While the physical demands upon employees of any specified class are in general similar among all employees of the class, variations in physical exertion among employees of a single job class occur on the job as well as at home. The occupations represented in the sample are grouped by degree of physical exertion according to a list adapted by the National Office of Vital Statistics from a U. S. Department of Labor Coding System. Persons in jobs not listed in the coding system or whose job classifications were not stated are grouped in a "doubtful" physical exertion class.

Eighty-five per cent of the persons in "sedentary" work in this study were employed in clerical, accounting, library and similar jobs. Approximately 50 per cent at "light" physical exertion were employed as directors, plant operators, engineers, inspectors and in similar occupations. Seventy per cent in the "medium" exertion class were employed as warehousemen, janitors, equipment operators, servicemen and the like. Ninety per cent of workers in the "heavy" exertion class were maintenance laborers, gardeners and carpenters.

Table 4 gives data on the men who died up to December 31, 1955, according to clinical status and degree of physical exertion of the job held when they entered the study. The variation in physical exertion within each of these classes and the small number of cases and deaths prohibit firm conclusions. Among men with normal heart, there was little difference in death rate as between one kind of job and another. Among the men with heart disease, however, the highest death rates are observed among those employed at sedentary jobs and at light physical exertion, while the lowest rates occurred among those employed in jobs involving medium or heavy exertion. The higher death rates among those at sedentary and light work may be due to selection of such jobs by the persons with known physical disabilities, including heart disease. Further study of this problem is necessary.

Case Finding

If ease finding in a community heart disease program is to be done, practical screening procedures need to be developed. The sensitivity and specificity of the screening technique used are of prime importance. The screening method influences the administrative procedures, professional relationships and the effective utilization of community resources for diagnosis, treatment and rehabilitation. The method used should be such as to lead to discovery of a satisfactory proportion of the existing cases with a minimum of false positive referrals.

Some insight into the potential use of history, 70 mm. x-ray films and electrocardiograms as screening techniques is possible by reviewing the results of the use of these aids in cardiac examinations in the present study, in which the numbers of persons with heart disease and with normal heart are known.

The minifilm x-rays taken at the time of the first examination were read by two physicians (A and B) who had no knowledge of the diagnosis. A few large films and some unsatisfactory minifilms were taken. The minifilm reading by Reader A would have discovered 66.1 per cent of the total number of cases diagnosed heart disease and 43.8 per cent of those diagnosed possible or potential heart disease. Of the 2,007 persons diagnosed as having normal heart, 27 per cent had cardiovascular abnormalities observable in x-ray films (Table 5). Of 688 persons with roentgenographic cardiovascular abnormalities, 544 (79 per cent) did not have confirmed heart disease (Table 6). Thirty months later, 60 of these persons (11.3 per cent of the 544) were diagnosed as having heart disease, or potential or probable heart disease, or had died (Table 7). One can infer that referral of the 688 persons would have revealed no diagnosable heart disease in 79 per cent.

Electrocardiograms made with 12 or 13 leads were interpreted by the cardiologist who was also engaged in the diagnostic classification of the persons studied. The electrocardiogram was classified as abnormal* in 120 (72.7 per cent) of the 165 persons who were diagnosed as having heart disease at the index examination. It contributed to the diagnosis in 19 of 23 persons classed as having rheumatic heart disease (82.6 per cent), in 80 of 97 with hypertensive heart disease (82.5 per cent), and in 29 of 55 diagnosed as having coronary artery disease (52.7 per cent). The electrocardiogram was interpreted as abnormal in 50 per cent of persons classified as having possible or potential heart disease. Of 2,007 persons diagnosed as having normal heart, 249 (12.4 per cent) had abnormal electrocardiograms. Considering electrocardiograms as a screening procedure, 409 persons (18.2 per cent) would have been referred for diagnosis. In the group who would have been referred 120 (29.3 per cent) were diagnosed as having heart disease; 40 (9.8 per cent) as having possible or potential heart disease; and 249 (60.9 per cent) had no diagnosable heart disease. Of the 249 persons "screened" by abnormal electrocardiograms who were diagnosed as having normal heart at the first examination, 26 (10.4 per cent) were diagnosed as having heart disease. or possible or potential heart disease, or had died 30 months later.

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*For the purposes of classification used in this study, "abnormality" excluded minor arrhythmia, tachycardia, and/or bradycardia.

TABLE 6.—*Clinical Status at Index Examination of Persons Presenting Abnormalities on Minifilm X-ray, Electrocardiogram, and History*

Techniques	Number Examined	Screening Level† (Per Cent)	Abnormalities		Heart Disease§		Possible or Potential Heart Disease§		Normal Heart§	
			No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
X-ray, Reader A	2,120	32.5	688	100	109	15.8	35	5.1	544	79.0
X-ray, Reader B	2,134	16.6	355	100	76	21.4	17	4.8	262	73.8
X-ray, A and B	2,118	13.1‡	277	100	73	26.4	13	4.7	191	69.0
Electrocardiogram	2,252	18.2	409	100	120	29.3	40	9.8	249	60.9
History*	2,252	18.8	423	100	73	17.3	19	4.5	331	78.2

*On basis of reply to: "Have you noticed increasing or undue shortness of breath with exertion?"

†Proportion of films read as "positive" by individual readers.

‡Proportion of films as to which both readers agreed as to "positive" interpretation.

§As determined by cardiologists.

TABLE 7.—*Abnormal Minifilm X-ray, Electrocardiogram, and History Among Persons Normal at First Examination as Related to Status at Third Examination*

Technique	First Examination Abnormalities		Changes in Clinical Status Between the 1st and 3rd Examination*							
			Normal to Heart Disease		Normal to Possible or Potential Heart Disease		Normal to Death		Normal to Normal	
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
X-ray, Reader A	544	100	24	4.4	19	3.5	17	3.1	439	80.7
Electrocardiogram	249	100	10	4.0	12	4.8	4	1.6	195	78.3
History†	331	100	16	4.8	6	1.8	7	2.1	264	79.8

*Does not include those who withdrew from study.

†On basis of reply to: "Have you noticed increasing or undue shortness of breath with exertion?"

One of the questions as to history was: "Have you noticed increasing or undue shortness of breath with exertion?" An affirmative answer to this question was given by 73 persons diagnosed as having heart disease (44.2 per cent) and by 19 (23.8 per cent) of those diagnosed as having possible or potential heart disease. Of the 2,007 persons with diagnosis of normal heart, 331 (16.4 per cent) also answered "Yes" to this question. Within the next 30 months, 29 of the 331 (8.7 per cent) were diagnosed as having heart disease or possible or potential heart disease, or had died.

Considering the minifilm x-ray, the electrocardiogram, and the replies to the question on shortness of breath as screening techniques, the electrocardiogram was in closest agreement with the clinical diagnosis.

Had the independent finding of enlarged heart on x-ray film been available to the cardiologist, however, some of the persons classed as having normal heart in this study would have been diagnosed as having heart disease. This would have resulted in closer agreement between this "screening" technique and the diagnosis than is recorded here.

The excellent cooperation of individuals in the study population, private physicians, and employers makes possible a continuing follow-up of the status of the study participants. The sensitivity of various combinations of methods for detection of heart disease, and the characteristics of persons who withdrew from the study population are being evaluated.

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ACKNOWLEDGMENT

This study originated under the Los Angeles City Health Department, George M. Uhl, M.D., health officer. The authors of reference No. 2 are associated with the Department of Preventive Medicine and Public Health, School of Medicine, and the School of Public Health, University of California at Los Angeles.

The study was supported in part by a contract with the National Heart Institute, Public Health Service; in part by the California State Department of Public Health; in part by the Los Angeles County Tuberculosis and Health Association. Use of tabulating equipment was provided in part by the Office of Naval Research and the Office of Ordinance Research, United States Army.

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Aspiration of Gastric Contents Under Anesthesia

A Review and Clinical Study

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• Aspiration of vomitus is one of the leading causes of anesthetic deaths. These deaths can be prevented only by proper evaluation of the patient preoperatively and assuming that any patient dealt with in emergency has a full stomach until proven otherwise.

Preliminary observations on the incidence of "silent regurgitation and aspiration" in a series of patients anesthetized for elective operation indicated that by obtaining a smooth induction and preventing any respiratory obstruction during anesthesia, regurgitation and aspiration can be minimized.

IN A RECENT REVIEW of 589 cases of death associated with anesthesia, Edwards[4] noted that regurgitation or vomiting was the cause in 110 cases. This was the largest single cause of death in the series. Death from this cause is preventable.

In 1887 Becker described the pathological features of aspiration pneumonia in relation to postoperative complications. Holscher in 1898 pointed out the importance of aspiration of foreign substances as a cause of postoperative pneumonia and cautioned against assuming that pneumonia after operation was always from some other cause.

Lemon[6] in 1926 did some of the early experimental work on aspiration. Using dogs, he found that under ether anesthesia when liquid material was introduced into the oral cavity aspiration into the lungs was very common except when the animal was in full Trendelenburg position. The danger of aspiration of stomach contents during upper abdominal operations was discussed by Bolfour and Gray.[2]

INCIDENCE

Merrill and Hingson reported in 1951[10] an incidence of 100 maternal deaths per year in this country due to aspiration of vomitus. They also collected reports of 75 cases of nonfatal aspiration pneumonitis in 192,000 deliveries. If this incidence were projected to the estimated total deliveries that year, it could be assumed that there were 1,368 cases of aspiration pneumonia associated with parturition.

Ernest Irons and Carl Applebach,[7] in a study of records of postmortem examinations at the Presbyterian Hospital at Chicago from 1929-1938, reported aspiration pneumonia in 20 per cent of all subjects. Approximately 70 per cent of the subjects had been surgical patients.

Culver and Beecher[3] in a report on 300 patients anesthetized for operation, primarily with ether, observed that regurgitation of gastric contents occurred in 26 per cent of cases and aspiration of the vomitus in 15 per cent. The occurrence of regurgitation was detected by putting methylene blue into the stomach before operation and then noting whether there was staining of the mucosa of the pharynx or trachea.

Berson and Adriani[1] in a study of a series of 926 patients anesthetized with various agents and techniques, and with carmine red as the dye, noted that the incidence of regurgitation was 14 per cent and of aspiration of gastric contents 7 per cent.

DEFINITIONS OF TERMS

Vomiting is an active process resulting in the forceful expulsion of the contents of the stomach through the mouth. It is characterized by a series of coordinated movements, some of them voluntary, that result in a relaxed stomach being squeezed between the descending diaphragm and the contracting abdominal muscles.

Regurgitation is a passive process entirely involuntary in which liquid is lost from the stomach due to relaxation of the cardia. The effects of gravity and pressure on the stomach are important.

Aspiration occurs when material enters the larynx or trachea from the oral cavity either due to the effect of gravity or the inspiratory "negative pressure."

Cardia is a sphincter at the distal end of the esophagus which acts like a valve. It allows materials to pass from above downward but obstructs their passage from the stomach into the esophagus. This valve, according to O'Mullane,[12] has no somatic control and is competent under full muscular relaxation and ganglionic blockade. The valve may be made incompetent by simple inspiratory obstruction

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Presented before the Section on Anesthesiology at the 86th Annual Session of the California Medical Association, Los Angeles, April 28 to May 1, 1957.

which mimics some of the muscular components of vomiting.

The *cricopharyngeal sphincter* is located at the junction of the pharynx and esophagus and acts like a sphincter normally. It is affected by relaxants and when paralyzed it acts like a valve, permitting material from the esophagus to enter the pharynx but preventing material from entering the esophagus.

FACTORS IN THE OCCURRENCE OF REGURGITATION OR VOMITING

Material in Esophagus or Stomach

Obviously material must be present in the esophagus or stomach to be vomited or regurgitated. Morton and Wylie[11] outlined the various conditions that might cause the presence of such material:

1. Material in the esophagus
   a. Pouch, diverticulum, or obstruction.
2. Material in the stomach from above
   a. Food, liquids, blood, etc.
3. Material in the stomach from below
   a. Intestinal obstruction.
4. Material from the stomach
   a. Secretions, blood from an ulcer.
5. Material in the stomach due to prolonged emptying time
   a. Pyloric obstruction
   b. Dilatation of the stomach
   c. Reflex—emotional states, peritoneal irritation
   d. Abdominal distention—tumors, pregnancy, etc.
   e. Severe illness and toxemia
   f. Drugs—morphine and most narcotics, anesthetic agents.

Usually several of the foregoing factors combine to bring about the retention in the stomach of material retained that can be regurgitated or vomited. The material is usually liquid, which is important since liquids can be removed with a tube from the stomach without great technical difficulty.

Technique and Anesthetic Agent

Adriani's report[1] did not indicate a pronounced difference in the incidence of vomiting or regurgitation in relation to the kind of anesthetic agent used. Both Berson and Adriani and Culver[3] stressed the importance of a smooth induction and maintenance of anesthesia as the most important prophylactic measure against regurgitation and vomiting. The presence of an endotracheal tube will not prevent aspiration unless the tube has a cuff which is inflated to make a tight fit. Pharyngeal packing does not prevent aspiration.

Position of the Patient

O'Mullane[12] did a series of experiments on humans in which he measured the intragastric pressure in two groups of patients. The first group had distention of the abdomen due to gravid uteri, and the second group had concave abdomens. The stomach was distended with 500 to 1,000 cc. of saline solution and the intragastric pressure then was measured.

A decided increase in the intragastric pressure was noted in the patients with distended abdomens when put into the Trendelenburg or lithotomy position. This may be one of the factors in the high incidence of regurgitation and vomiting at the time of delivery.

Berson and Adriani[1] made a study of the subject and expressed belief that it is difficult to determine the importance of position. Like other investigators,[10,11] they stressed that the head down position does not prevent aspiration and may induce regurgitation. Most observers agree that postoperatively the best position is on the side with the head at a lower level than the chest. Then, if regurgitation or vomiting does occur, the material will escape from the mouth and probably not be aspirated unless the amount is large.

Presence of Gastric Tubes

There has been a great deal of controversy as to whether the presence of a gastric tube insures the stomach will be empty and regurgitation or vomiting therefore not possible. In the series reported by Berson and Adriani[1] it was noted that there was a more frequent incidence of regurgitation and aspiration when a gastric tube was in place during the induction and maintenance of anesthesia. This was attributed to the fact that it is more difficult to induce and maintain uniform anesthesia because of the difficulty of getting the mask to fit tight. Culver and Beecher[3] on the other hand reported a decrease in the incidence of regurgitation if a stomach tube was in place and draining.

Time When Regurgitation or Vomiting Occurs

Morton and co-workers[11] listed the time when vomiting or regurgitation occurred in 45 cases of fatal aspiration under anesthesia: During induction or shortly thereafter, 25 cases; during induction and operation, 2 cases; during operation, 11 cases; during recovery, 5 cases. Since induction of anesthesia was done with Pentothal or Pentothal-relaxant combinations in 23 of the 45 cases, the premise that a smooth, rapid induction with Pentothal will prevent vomiting or regurgitation has apparently little basis.

PATHOLOGY

If large solid particles have been aspirated, the areas of collapse of the lungs as observed pathologically will depend on the size of the foreign particles. Unless the patient died immediately, local areas of necrosis or abscess may be present.

By far the most commonly observed pathological changes are those that follow the aspiration of liquid gastrointestinal material. The condition has been variously termed hyperemia of the lungs, hypostatic bronchopneumonia, pneumonitis and postoperative bronchopneumonia. Grossly the lungs are overdistended and weigh more than normal unless death occurred soon after aspiration. Usually there appears to be a pronounced degree of postmortem change, with dark blood in the alveolar spaces. Intense hyperemia is present in the bronchial tree, and if aspiration was recent the material in the small bronchi may be identical with that in the gastrointestinal tract. The hemorrhagic and hyperemic regions are unevenly distributed in the lung tissues. Cultures of the material in the lungs characteristically show a multiplicity of organisms, and as a rule the organisms are the same as grow on cultures of gastric contents.

Microscopically there is engorgement of the alveolar capillaries with red cells, and edema and hemorrhage into the alveolar spaces. Pronounced desquamation of the lining of the bronchial tree and hyperemia of the submucosa of the tracheobronchial tree are characteristic.

CLINICAL SYNDROME FOLLOWING ASPIRATION

Once a patient has vomited or regurgitated and aspiration has occurred, the events that follow depend on the kind of material that has been aspirated, the amount aspirated and the secondary protective reflexes that may take place.

Kind of Material Aspirated

The material may be liquid or solid particles—in reported series, the former much more often than the latter:

	Solid No. of Cases	Liquid No. of Cases
Edwards[4]	10	92
Mendelson[9]	5	40
Berson[1]	0	64
Culver[3]	0	49

If the aspirated material is solid or semi-solid, acute respiratory obstruction and acute asphyxia occur instantly. If the solid material is smaller in diameter than the trachea and main bronchi, lobar or lobular atelectasis occurs, and areas of suppuration and abscess may develop if the patient lives long enough.

Liquid material even in very large amounts does not cause immediate death unless the act of aspiration set off reflexes causing laryngeal spasm and/or bronchospasm. The resulting acute anoxia, which is frequently preceded by variable periods of suboxygenation (difficult induction) may be fatal. Foreign material lodging in the tracheal-bronchial tree in cases in which hypoxia already is a factor may cause so-called vagovagal reflexes which result in cardiac arrest. Nearly always the aspiration of liquids will cause some degree of laryngeal spasm and coughing unless the patient is completely paralyzed with a relaxant at the time. Frequently the patient seems to improve after laryngeal spasm and coughing subside. but an asthmatic-like syndrome may develop several hours later. This development, first described by Mendelson,[9] may come as much as 24 hours after aspiration. It is characterized by gradual onset of cyanosis, tachycardia and dyspnea without signs of massive pulmonary collapse. On physical examination expiratory wheezes and rales can be heard throughout the chest. X-ray films of the chest in the acute phase show soft mottled densities throughout the lung fields. Usually the patient gradually recovers. However the condition may progress to cardiac failure, severe pulmonary edema and death. In the nonfatal cases, the pulmonary densities clear gradually over a period of seven to ten days.

Sometimes the aspiration of large amounts of liquid gastric contents seems to cause very little disturbance, and it is postulated by some observers that this is because the aspirated liquid did not contain bacteria and possibly was low in acidity.[2]

TREATMENT

When aspirated material or spasm blocks the airway, it is imperative to restore a clear passage for air at once. To do so may necessitate removing a solid piece of food from the glottic opening or trachea, or suctioning liquid vomitus from the pharynx and trachea. Since there is usually some degree of laryngospasm and, therefore, hypoxia, oxygen should be given. As soon as possible a cuffed endotracheal tube should be inserted and the cuff inflated to prevent any further aspiration. The tracheal-bronchial tree should then be thoroughly washed out by injecting 5 cc. of normal saline solution down the endotracheal tube and then removing the liquid by suction. This should be repeated until the solution removed is not stained with gastric content. During this washing process it is imperative to maintain adequate oxygenation. If the patient does not rapidly improve, bronchoscopy must be carried out to remove any solid particles that are causing obstruction. If possible, the operation for which the patient was being anesthetized should be put off for at least 24 hours to determine if any untoward effects are going to develop. Any patient who has aspirated either solid or liquid material should be given a broad spectrum antibiotic after operation. If an asthmatic syndrome develops after aspiration of gastric material, oxygen or an oxygen-helium mixture should be given and the patient should also receive bronchial dilator drugs and intensive antibiotic therapy. Corticotropin (ACTH) and cortisone may be of benefit, but the effectiveness of these hormones has not yet been determined.

PREVENTION OF ASPIRATION OF GASTRIC CONTENTS

To help in determining which patient is likely to vomit or regurgitate Morton and Wylie[11] suggested that all patients be classified by the following criteria:

1. Food and liquids are known to have been taken recently.
2. It is unlikely that the stomach is empty.
3. There is no reason to suspect that the stomach is not empty.

If the patient is of Class 1, operation should be postponed or the stomach washed out with a large tube. Liquids can be adequately removed with a tube if the time is taken to do so. As to postponing operation until normal gastric motility empties the stomach, there are certain problems which must be kept in mind. Gastric motility is greatly influenced by many factors such as pain, fear and other emotions and certain drugs, such as the narcotics. In two of the fatal cases reported by Mendelson,[9] solid material was aspirated which had been eaten six and eight hours before anesthesia. Hence it is well to be suspicious that any patient dealt with in emergency has a full stomach regardless of when the last food or liquid was taken.

A patient should be considered in Class 2 if any of the following circumstances apply:

1. There is an acute abdominal condition.
2. The patient is seriously ill.
3. A relaxant is to be used or very deep anesthesia induced.
4. Esophageal obstruction of any kind is present.

In such cases if the stomach cannot be proved empty, it must be emptied. Morton and Wylie[11] and Edwards and co-workers[4] repeatedly stressed the importance of using a stomach tube of adequate size and carrying out thorough aspiration of gastric contents in all cases in Class 2.

To assume that a history that the patient has vomited several times is assurance that the stomach is empty is a sometimes fatal trap. A history of vomiting should always indicate that probably there will be more vomiting or regurgitation during anesthesia.

In some cases there are some contraindications to inducing vomiting, and in some cases it is almost impossible to pass a tube into the stomach. Several methods have been devised for use in such instances to block off the stomach from the esophagus. MacIntosh in 1951[8] described the use of a cuffed tube which was inserted into the esophagus. By insertion of enough tube to reach 18 inches from the front teeth, the tip of the tube was placed just at the distal end of the esophagus; then, when the cuff was inflated, it kept material from going from the stomach into the esophagus. Gilman and Abrams[5] recently described a modification of the tube first used by Kausch. They passed the tube into the stomach, then inflated the cuff and pulled the tube back up far enough so that the cuff occluded the esophageal opening of the stomach.

In most of the fatal cases of aspiration that were reported by Morton and Wylie[11] and by Edwards[4] aspiration occurred at the time of induction, frequently just before or during attempted intubation after administration of Pentothal-relaxant combinations. These investigators advocated that during induction and intubation the patient be kept in a 20° reverse Trendelenburg position to prevent the flow of liquid material up the esophagus. Intubation in this position is not difficult for those experienced in direct laryngoscopy and intubation. However, the effect of anesthesia on the cardiovascular system in this position must be kept in mind. Once the cuff is inflated, the position may be changed.

Aspiration of gastric contents can be prevented by using local or regional anesthesia, provided the patient is awake and alert at all times during the operative procedure. Also, by using topical anesthesia, endotracheal intubation can be done on a patient who is awake. The trachea must be effectively blocked off from the pharynx by an inflated cuff before the patient is given a general anesthesia following intubation.

CLINICAL STUDY

A clinical study similar to one done by Berson and Adriani[1] was carried out. The series studied was made up entirely of private patients who were anesthetized for surgical treatment of various conditions. All of the patients were anesthetized for variable periods (15 minutes to four hours) with so-called balanced anesthesia. Carmine red in gelatin capsules was given to the patient with an ounce of water 30 minutes before operation. Care was taken to obtain smooth induction, using Pentothal intravenously. Anesthesia was then maintained with nitrous oxide and small doses of thiopental (Pentothal) and/or meperidine (Demerol). Relaxants were used when needed for abdominal operations or to facilitate intubation. All patients having upper abdominal operations were intubated with a cuffed endotracheal tube and respirations were controlled during the major part of the procedure. In view of the previously discussed work of O'Mullane,[12] respirations were assisted and/or controlled in all cases, and every effort was made to prevent inspiratory obstruction. Following are the observations in the first 50 cases in this series. They constitute only a preliminary report, for the study is still in progress.

Regurgitation occurred in two cases—in both instances while the patient was "bucking" on the endotracheal tube during light anesthesia. Considering the muscular components of "bucking," it is not surprising that regurgitation occurred, for in some respects it is similar to vomiting. An inflated cuff on the tube prevented aspiration of gastric contents in both cases. Aspiration did not occur in any case in the series.

Although this series is not complete, the results thus far tend to indicate that by obtaining a smooth induction and preventing any respiratory obstruction the incidence of so-called "silent regurgitation and aspiration" can be reduced. A facet of the study still in progress is to consider the advantages of tubes of various types as a means of blocking off the stomach from the esophagus in cases in which there may be gastric contents that might be regurgitated and aspirated.

There is a great need for further investigative work on this problem, especially studies on gastric emptying time and on motility during periods of emotional stress such as fear and pain and during active labor.

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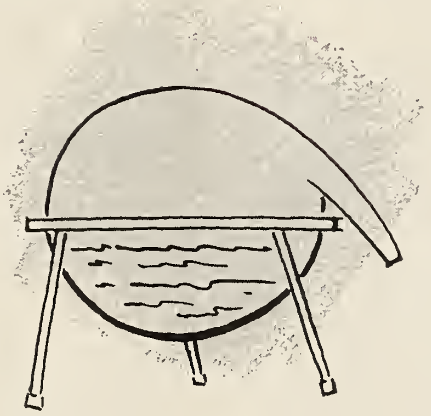

Phenmetrazine Hydrochloride

A Clinical Evaluation of a New Anoretic Agent

ROBERT FELDMAN, *M.D.*, EDMOND C. ALBERTON, *M.D.*,
and LEELA CRAIG, *M.D.*, San Francisco

• Phenmetrazine hydrochloride appeared to be a safe anoretic agent and was effective in weight control in 80 per cent of a series of 49 obese patients.

Tolerance to the drug did not develop in periods up to 18 weeks of continued treatment.

Phenmetrazine was most effective in patients under 45 years of age in this series.

Side effects were minimal and easily controlled. No allergic or toxic effects were noted.

A NEW ANORETIC AGENT, phenmetrazine hydrochloride (Preludin®*), has had extensive use in Europe, especially in Germany, over the past two years with encouraging results.[2,4,7] A number of clinical reports have recently appeared in this country as well.[3,5,6]

Phenmetrazine has the chemical formula of 2-phenyl-3 methyl-tetrahydro-1, 4 oxazine hydrochloride and is a white, odorless, crystalline powder with a bitter taste. The toxicity of the drug, as judged both by the LD$_{50}$ in mice and the amount needed for central nervous system excitement, is approximately one-fifth that of amphetamine.[8] Phenmetrazine in the same dose as epinephrine has a relatively weak effect on blood pressure; in dogs it brings about approximately one one-thousandth as much rise in blood pressure.[8] The mode of the anoretic action of this drug has not yet been determined.

Results of a clinical evaluation of its effect on obesity are presented in this communication.

MATERIAL AND METHODS

The subjects of this study were an unselected group of persons who attended the Obesity Clinic which had been established for the sole purpose of studying the problem of obesity. The majority of these patients had been observed carefully for a number of years in the clinic and had shown only slight reduction of weight on previous dietary and drug regimens. Forty-nine patients were included in this study. All but one were females. The average age was 47, with a range of 15 to 73 years. The average weight at the beginning of the study was 208.3 pounds and the range was 132 to 346 pounds.

No specific dietary restrictions were employed during the period of this study except that patients who were already following dietary regimens were advised at the beginning of the study to make no changes. No other anoretic agents were used, but previous therapy such as administration of diuretics, desiccated thyroid and sedatives was not discontinued. All the patients had been observed for long periods during which their weight had fluctuated little.

A technique using identical appearing tablets was employed. These were labeled A66 and B66, and the investigators were not told which tablet contained the active drug. Each bottle was marked as containing 25 mg. tablets. Each patient took one tablet 30 minutes before each meal. The plan of study was to give alternate patients either constantly A66 or constantly B66 for six weeks, then to change to the other tablet for six weeks. Finally, the patients were to receive for an additional six weeks the tablet they had started with. In this manner each patient could serve as her own control. However, within a few weeks it was apparent that the studies could not be followed as planned. It was readily noted by both patients and investigators that tablet A66 was the active drug and B66 the placebo. Many patients would not cooperate in taking the placebo when they were coming to the clinic for help in weight reduction. As a result, the period of observation for patients on tablet B66 was shorter, and a few patients did not receive B66 at all.

The patients were seen at two-week intervals, and at every visit they were weighed, had blood pressures and pulse rate determined and were interviewed by one of the investigators. Complete blood cell counts and urinalyses were done before and during therapy on all patients.

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Trainee of the National Institute of Arthritis and Metabolic Diseases (Feldman); Chief, Obesity Clinic, Department of Medicine (Craig); Clinical Instructor, Department of Medicine (Alberton), University of California School of Medicine, San Francisco.

*Grateful acknowledgment is made of a supply of phenmetrazine and a grant-in-aid for this investigation by Geigy Pharmaceuticals, Division of Geigy Chemical Corporation.

Submitted June 19, 1957.

RESULTS

The average period of individual patient observation was 11.5 weeks, with a range of 4 to 21 weeks. The study comprised a total of 565 patient weeks.

Weight Changes

1. Thirty-nine patients (80 per cent) showed loss of weight while taking phenmetrazine. Ten patients (20 per cent) did not lose weight, and a few gained weight while taking the drug.

2. The 49 patients received phenmetrazine for a total of 420 patient weeks. The average weight loss per week during administration was 0.82 pound (the average included the gains by some patients).

3. Thirty-three patients received the placebo for a total of 145 patient weeks and showed an average weight gain of 0.44 pound per week during this period (Table 1).

4. Thirty-three patients received the placebo and phenmetrazine alternately. The results in this group demonstrated the statistical significance of the weight-losing effect of phenmetrazine (Table 2).

Persistence of Continuous Weight Loss

During administration of phenmetrazine, the mean weight loss per week in 33 patients studied ten weeks or less was 0.77 pound. In sixteen patients studied for 11 to 18 weeks the mean weight loss was 0.88 pound per week during administration of phenmetrazine (Table 3). This difference is not significant, and the results suggest that there is no tolerance to the effect of the drug.

Relation of Age to Weight Loss

Twenty-five patients aged 45 years or less showed an average weight loss of 1.1 pounds per week during a mean study period of 9.7 weeks of treatment with phenmetrazine. Twenty-four patients over 45 years of age showed an average weight loss of 0.42 pound per week during a mean study period of 7.4 weeks for this group (Table 4).

TABLE 1.—*Weight Changes in 49 Patients*

	Tablet	
	Phenmetrazine	Placebo
Number of patients	49	33
Total number of patient weeks	420	145
Average number of weeks/patient	8.6	4.4
Range of weeks of administration	4 to 18	2 to 17
Mean change in weight/patient week	—0.82 lb.	+0.44 lb.

TABLE 2.—*Weight Changes in Patient Receiving Both Phenmetrazine and Placebo*

	Tablet	
	Phenmetrazine	Placebo
Number of patients	33	33
Total number of patient weeks	313	133
Average number of weeks/patient	9.7	4.4
Range of weeks of administration	4 to 18	2 to 17
Mean change in weight/patient week	—0.64 lb.	+0.44 lb.
p value	<.001*	<.001*

*Less than 1:1000 chance of the difference being due to chance alone.

TABLE 3.—*Response to Phenmetrazine in Terms of Duration of Administration*

	Period of Rx with Phenmetrazine	
	1 to 10 Weeks	11 to 18 Weeks
Number of patients	33	16
Average number of weeks/patient	6.2	13.5
Mean weight loss/week	0.77 lbs.	0.88 lbs.
p value	>0.1*	>0.1*

*Greater than 1:10 chance of the difference being due to chance alone.

TABLE 4.—*Results in Patients in Different Age Groups During Administration of Phenmetrazine*

	Age Group	
	Under 45	Over 45
Number of patients	25	24
Average number of weeks/patient	9.7	7.4
Mean weight loss/week	1.1 lb.	0.42 lb.
p value	.015*	0.15*

*Less than 1:60 chance of the difference being due to chance alone.

Side Effects

No serious side effects, allergic or toxic reactions were noted. No changes were noted in the urine or in the leukocyte content of hemoglobin level of the blood before and during therapy. Significant elevation of blood pressure or pulse rate was not observed, even in patients who had moderate hypertension. Occasional subjective complaints were noted in ten patients. They consisted of one case of nausea, one of gaseousness, two of nervousness, three of insomnia and three of metallic taste. Thus, the overall incidence of side effects was 20 per cent, and these were not serious enough to warrant discontinuation of the drug except in one case because of nervousness. It should be noted that the average dose of phenmetrazine used in this study was 75 mg. per day, which is greater than the amounts reported in most of the other series and may account for the rather high incidence of minor unpleasant reactions observed. Also, it is apparent that even with the higher dosage employed, no greater weight loss was obtained. The side effects were easily controlled by decreasing the dose and/or altering the time of administration. The subjectivity of a number of side effects is emphasized by the finding that 10 per cent of the patients given the placebo noted some of these as well. On the whole only the occurrence of a metallic taste and insomnia appeared of any consequence.

DISCUSSION

To test the validity of the observed differences in weight change during administration of phenmetrazine (a reduction of 0.82 pound per week) and the placebo (an increase of 0.44 pound per week), the results in the 33 patients in the series who received both the drug and the placebo alternately, and therefore served as their own controls, were subjected to statistical analysis. The p value for this group was less than 0.001, a probability of less than one in 1000 that the results were due to chance (Table 2). The weight loss observed with phenmetrazine was less than other investigators have reported. It should be emphasized that previous studies included specific dietary restriction, which was not the case in this series and probably accounts for the differences in weight loss obtained. The lack of dietary control is a realistic approach to the usual situation in which the patient does not continue to follow a strict and rigid diet.

Most patients immediately noted the anoretic activity of phenmetrazine. In fact, the pronounced difference in anoretic activity between phenmetrazine and the placebo made it impossible to carry out the experiment as planned, since the patients were reluctant to continue taking the placebo. Another action of phenmetrazine which many patients commented upon was that they were satiated more easily, even when there was little reduction in appetite before meals.

It has been noted previously by other investigators[1] that most regimens that include anoretic agents are effective the first month or two of therapy but that the efficacy of these regimens drops sharply after this period. Such was not the case with phenmetrazine (Table 3).

Ten patients, or 20 per cent of this series, did not lose weight while taking phenmetrazine. The reason is not known but certainly the phenomenon was not unexpected. In general, however, elderly patients did not respond as well as the younger subjects, and seven of the ten patients who did not lose weight while taking phenmetrazine were over 45 years old (Table 4). The lesser loss of weight in the older age group is in keeping with the general experience that it is harder to obtain weight reduction in older subjects. This can not be related to the anoretic factor but must be attributed to other factors, for the most part unknown, that influence body weight changes with increasing age.

Since there were no serious side effects, notably allergic and cardiovascular symptoms, phenmetrazine appears to be a safe and valuable adjunct to the dietary management of obesity.

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ACKNOWLEDGMENT

The authors are indebted to Dr. Peter H. Forsham, Director, Metabolic Unit, for advice and guidance and to G. Grodsky, Ph.D., Assistant Research Biochemist, for his help in the statistical analysis.

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CASE REPORTS

Acute Encephalitis and Death Following Asian Influenza

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PUBLIC HEALTH REPORTS to date have indicated the present epidemic of Asian influenza is mild and in general without serious complications. In the case here reported the patient was admitted to the psychiatric department of Herrick Memorial Hospital because of acute mental symptoms and acute basal ganglia and midbrain neurologic manifestations. The patient died, apparently from an overwhelming influenzal hemorrhagic bronchopneumonia and medullary failure. Virus study and necropsy were consistent with the clinical diagnosis of influenza and toxic encephalitis.

The senior author, while in residency training, observed large numbers of cases of acute encephalitides following the 1918 epidemic of influenza from 1920-24,[1,2] and many of those cases resembled the one here reported. The mortality rate at that time was at least 25 per cent.

REPORT OF A CASE

The patient, a girl 16 years of age, was transferred from the Brookside General Hospital in Richmond to the psychiatric department at Herrick Memorial Hospital because of extreme overactivity, excitability, cursing and throwing of objects, which were attributed to toxic psychosis.

On August 26, 1957, the parents stated that the patient had been visiting in the country and on August 17 had been exposed to an ill patient who had chills, fever and general malaise and was diagnosed as having Asiatic influenza.

On August 20 the patient had chills and fever, the temperature reaching 102°F., with increasing malaise, vomiting and dizziness. She was admitted to Brookside Hospital August 25. On August 26 she was so disturbed that transfer to the psychiatric department was advised. Soon after admission she became comatose and had spasmodic movements of all four extremities. Reflexes were hyperactive. She frequently assumed an opisthotonic position of the body, and bilateral extensor plantar reflexes were present. These involuntary movements continued with extensor spasms, but there was never definite rigidity of the neck. The pulse rate was 128 and respirations 36 per minute. The temperature at admittance was 98.6°F. and within 12 hours reached 102°F. Spinal puncture was done and the pressure was 290 mm. of water. Removal of 8 cc. of fluid reduced it to 130 mm. The fluid was clear. It contained 3 lymphocytes per cu. mm. The total protein content was 20 mg. per 100 cc., chlorides 129 mEq. per liter and glucose 100 mg. per 100 cc. Leukocytes numbered 20,700 per cu. mm. of blood—67 per cent segmented neutrophils and 20 per cent nonsegmented polymorphonuclear cells. Spinal puncture was done again and there was no increase in cell content.

Medical consultations were called and pneumonic signs were observed clinically and roentgenographically. Large doses of antibiotics were given. Hypertonic glucose, 150 cc. of 50 per cent solution was given intravenously on one occasion because of signs of acute cerebral edema. All treatment was ineffectual.

The body temperature rose to 104 degrees, the pulse continued rapid and respirations increased to 36 to 40 per minute. The muscular twitchings continued and there were occasional hiccoughing attacks. Breathing became labored and accumulation of mucus in the throat necessitated suction from time to time. The patient suddenly died at about 10 p.m. on August 27.

Specimens of blood taken postmortem were sent to the State Public Health Virus Laboratory for virus and influenzal studies. The report was: Very strong reaction to Type A influenzal virus, 1:256—positive; to influenza B, 1:8—negative: hemagglutination inhibition, Asian influenza, 1:16.*

Necropsy was done and the report was as follows: "Pathologic changes were limited to the lungs and tracheobronchial tree and the brain. A résumé of the findings in these structures follows: The left lung weighed 680 grams, the right lung 730 grams. They were greatly overexpanded and the pleura was smooth. The tissue appeared quite heavy and boggy. On section, the tissue was mottled—bright red with darker bluish-red patches—and a large quantity of

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Submitted October 4, 1957.

*In a personal communication, Dr. Edwin H. Lennette, chief of the Viral and Rickettsial Disease Laboratory, California State Department of Public Health, indicated that in view of findings that few persons possess hemagglutination-inhibition antibodies to Asian strain of influenza A virus, an antibody titer of 1:16 would appear to have significance as evidence of infection with Asian strain.

frothy, thin bloody fluid flowed from it. The tissue was everywhere moderately firm and boggy. Crepitation was rather feeble and coarse throughout. No solid areas were found. The pulmonary arteries were open and showed no changes. The trachea and bronchi contained a considerable amount of grayish, thin, mucous fluid. The lining was red with some patches of dark purple-red scattered in it. It was rather granular. The hilus and mediastinal nodes remained rather small, none measuring over 5 mm. On section they were grayish-red, wet and soft. Microscopic examination showed marked diffuse edema with most of the alveolar spaces filled with fluid. Within this there were desquamated lining cells and in scattered foci, small numbers of red blood cells and occasional pus cells. The alveoli were generally distended, but there were small focal areas of collapse. In some of these areas, and in the alveolar walls about them, there were infiltrating lymphocytes and occasional pus cells, so that the walls were thickened. This was especially pronounced in the peribronchial tissue, including a perimeter of alveoli. The cell collections in these areas were pronounced. There was decided diffuse congestion of small vessels and sinusoids throughout the lungs. The bronchi and trachea showed generalized swelling, with edema and hyperemia of the mucosa, collection of lymphocytes and pus cells, and occasional areas of epithelial desquamation. Occasionally the inflammatory zones of the submucosa extended through the wall and became a part of the peribronchial inflammatory zone.

"The brain was swollen, weighing 1,405 grams. The brain surface was flat, with convolutions and sulci almost extinct. There was a heavy groove made by pressure about the medulla and the tips of the cerebellar lobes. Also, there were rather deep incisural notches. The pia-arachnoid was smooth and moderately congested. Multiple step-wise sections of the brain showed decided edema throughout. The lateral ventricles were completely closed by swelling of the brain. The choroid plexuses appeared typical. There was rather pronounced hyperemia with multiple pinpoint red dots seen throughout the brain, more marked at the base. The blood vessels were open and appeared unchanged. Microscopic examination showed marked diffuse edema. About the congested vessels, there were small areas of hemorrhage and often areas of edematous fluid collection. There were many small areas showing degenerative change of the ganglion cells of varying degree up to complete degeneration.

"*Diagnosis:* Acute tracheobronchitis with bilateral pneumonitis and associated massive edema and hyperemia of the lungs. The changes in the brain—edema, hyperemia and perivascular hemorrhages—were considered acute toxic changes."

SUMMARY

A 16-year-old girl who was put in hospital because of increasing malaise, vomiting and dizziness of five days' duration soon became so mentally disturbed that she was transferred to a psychiatric unit. There she became comatose soon after admittance and signs and symptoms referable to the central nervous system were present. Hemagglutination inhibition antibody titer of 1:16 for Asian strain of influenza A virus was considered evidence of infection.

The patient died seven days after the onset of symptoms. At autopsy pneumonic changes and toxic changes in the brain were noted.

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Intraepidermal Cancer of the Anus; Evolution to Invasive Growth

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INTRAEPIDERMAL CANCER of the anal region of Bowenoid type is a rather uncommon chronic dermatosis of slow malignant maturation that has been receiving some recognition recently.[4,14] In the past two years there have been additional reports of diagnosed and treated anal intraepidermal lesions.[3,5,7,8] Gordon[6] in a recent paper observed that five unsuspected *in situ* cancerous lesions had been discovered histologically in anal tissues removed for minor surgical conditions among 1,890 consecutive operative cases. It is probable that wider use of tissue examination in minor anorectal operations and total excisional biopsy studies of all chronic anal lesions would increase the number of cases of diagnosis of this early type of anal cancer before more lethal qualities could develop.

The slow growth potential of intraepidermal malignant lesions of Bowenoid type serves to keep the lesion *in situ* for many years. Montgomery[12] studied ten patients in whom glabrous skin tumors of this type remained constant for from six to thirty years without progression in size or degree of malignancy. However, Stout[13] and Helwig[9] both noted that an infiltrative or metastatic type of cancer developed in 2 per cent or more of the intraepidermal skin lesions. Bowen[1,2] used the title "Precancerous Dermatoses" for his two original papers on this condition, written in 1912 and 1915, but in describing the disease in a third patient he reported progression to metastatic cancer in axillary nodes. Therefore these lesions must be considered not as precancerous but as intraepidermal epitheliomata of Broder's classification Grade 0 or ½ from the outset, with the

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Submitted May 9, 1957.

property of developing to more advanced malignancy.[10,13]

The clinical diagnosis of Bowen's anal intraepidermal epithelioma is extremely difficult to make solely from the gross appearance of the lesion.[7] The history in cases of this anal dermatosis is one of chronicity and the lesion is rarely observed in persons less than 40 years of age. In the earlier *in situ* stage, the lesion has been described as brownish-red and plaque-like, with hyperkeratosis, crusting and weeping. However, it can mimic papilloma, condyloma, senile keratosis, psoriasis, an eczematoid lesion or even an early basal cell cancer. The more advanced infiltrative tumor is very likely to have a weeping, serpiginous, ulcerative patch in the more central degenerative portion of the lesion. Biopsy of total excisional type and serial sectioning is the only method for establishing an exact diagnosis and proper prognosis; the procedure is imperative for chronic anal lesions of any kind. Local excision of the lesion in the *in situ* stage will suffice for cure.

The histologic features are quite diagnostic of a Bowenoid intraepidermal epithelioma.[7,11,12] Generally, there is disorderly "wind-blown" epidermal hyperplasia together with parakeratosis and hyperkeratosis in the surface layers. Malpighian cell atypism, malignant dyskeratoses and mitoses in varying degrees and mixtures are present. Rather characteristic is the presence of Bowen's giant hyperchromatic "clumped" multinuclear vacuolated cells in the Malpighian prickly cell layer. Occasionally, a horn pearl formation is seen. A chronic round and plasma cell inflammatory infiltrate is always present in the subjacent dermis. These separate changes are not specific in themselves, for they also occur in other dermatoses, but when seen collectively will establish the diagnosis of intraepidermal cancer of Bowen's type. In the more advanced degenerative ulcerative phase beyond the *in situ* stage, a greater degree of epithelial anaplasia with invasion through the basal cell layer advances the tumor to a Broder's Grade 2 or 3 squamous cell cancer but never to a basal cell lesion.

In a paper published in 1954,[7] I reported three cases of the anal intraepidermal lesion in which local excision was carried out and the specimens studied histologically. The following additional case demonstrated the evolution of this chronic type of intraepidermal malignancy to a more anaplastic and invasive cancer with infiltration into the dermis. The patient gave a history of chronicity, and advanced ulcerative malignant degeneration was noted in the central portion of a recurrent incompletely excised intraepidermal anal lesion. There was progression in the degree of epithelial atypism from a Grade 0 to a squamous cell anal cancer of more malignant type.

REPORT OF A CASE

A 60-year-old white seaman was first observed May 18, 1956, with complaint of a recurrent anal tumor with associated soreness, itching, bleeding and soiling—all the symptoms having increased in intensity over the preceding few years. The patient had had hemorrhoidectomy in 1924. He had first noticed an anal excrescence on the right side in 1927. Since 1932 there had been some increase in size of the lesion, with anal soreness and itching developing later. Local treatment had been ineffectual. In 1952 the anal tumor was first excised in a marine hospital under local anesthesia. Tissue examination at that time showed a Bowenoid *in situ* cancer with mild squamous cell anaplasia (Figure 1). The line of surgical excision was noted to be across tumor tissue. Subsequently, the lesion recurred at the original site with an increase in the degree of involvement and symptoms. At the time of the present examination, the tumor was plaque-like and involved almost the entire right perianal region. About it was a marginal zone of hyperkeratosis. There was a nonindurated serpiginous eroded granular area at the center. The entire right perianal and anal region was excised with adequate margins of uninvolved skin. The wound healed promptly. The patient refused any other operative procedure

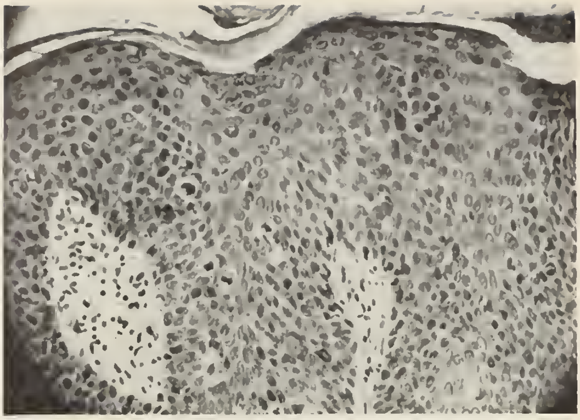

Figure 1.—Section of the original anal tumor showing early intraepidermal malignant changes with mild squamous cell anaplasia, haloed hyperchromatic giant cells, dyskeratosis and mitotic figures (×250).

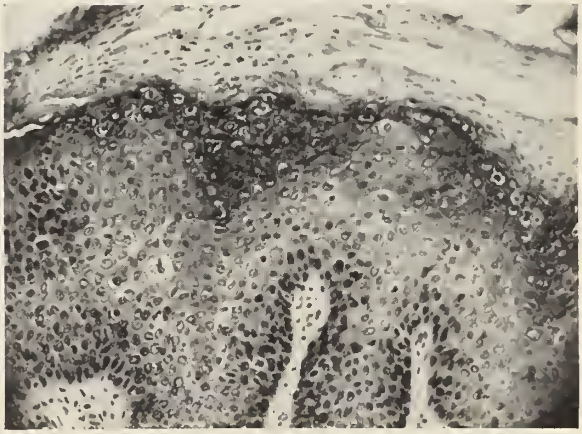

Figure 2.—Section at the marginal hyperkeratotic zone of the recurrent tumor. There is an intraepidermal Bowenoid lesion with hyperkeratosis, parakeratosis, anaplasia and haloed giant cells (×250).

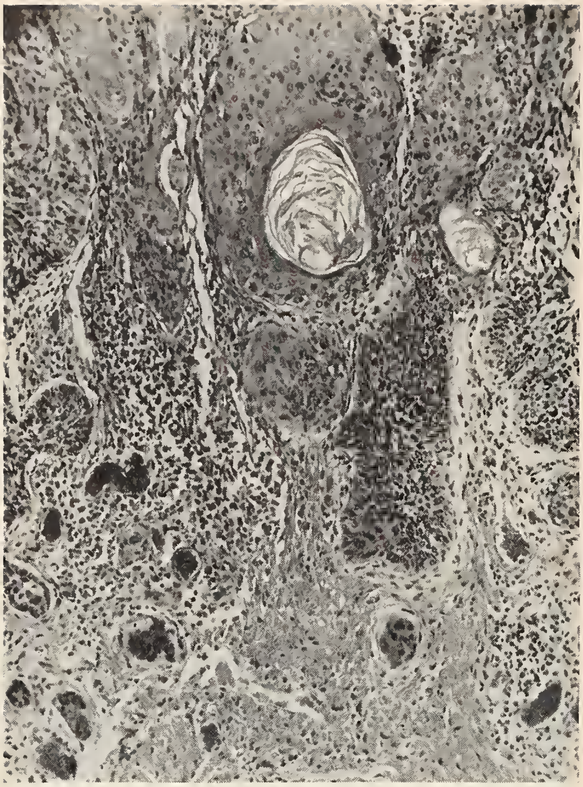

Figure 3.—Section of the more central eroded portion of the recurrent tumor, showing a greater degree of squamous cell anaplasia, invasion into the dermis and isolated cancer cell nests in deeper tissues (×150).

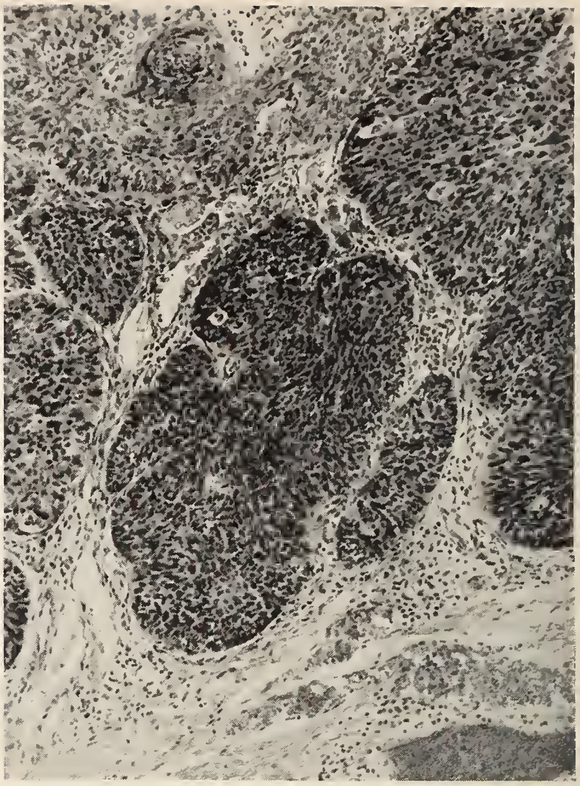

Figure 4.—Section of the central portion of the lesion showing more anaplastic epidermal cells encroaching on the dermal layer (×150).

and up to the time of this report no evidence of a recurrence had developed.

Pathologic examination of representative sections of the entire specimen was carried out. The marginal hyperkeratotic portion of the lesion showed moderate intraepidermal anaplasia with malignant dyskeratoses and multiple mitoses confined to the Malpighian layer. Bowen's haloed multinuclear giant cells were prominent and the microscopic features were consistent with an intraepidermal cancer of the Bowen type (Figure 2). However, in the more central eroded portion of the tumor there was focal necrosis and ulceration with an infiltrating squamous cell cancer that showed a more anaplastic undifferentiated type of epithelial cell of Broder's Grade 2 or 3. There was also evidence of penetration into the dermis (Figures 3, 4). The definite contrast between the degree of malignancy in the outer hyperkeratotic zone and that in the central eroded invasive patch was probably owing to development of a more degenerative evolutionary stage (Figure 5).

SUMMARY AND CONCLUSIONS

Intraepidermal squamous cell cancer of the Bowenoid type is an uncommon epithelioma of the glabrous skin surface which is occasionally reported in the anal region. This lesion has a tendency to remain *in situ* and dormant, with a low degree of anaplasia over a period of years, before undergoing increasing malignant degeneration and penetration or metastasis to underlying tissues.

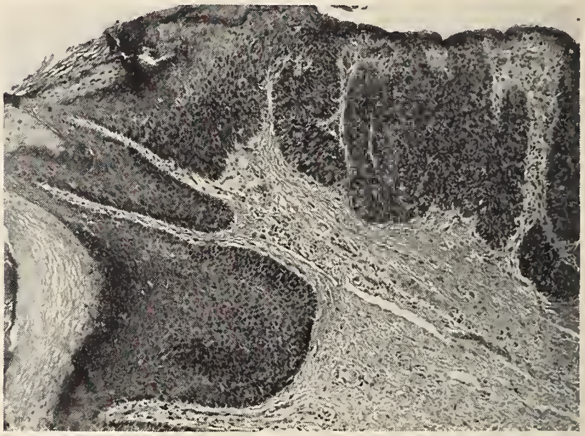

Figure 5.—Section of the lesion showing a low degree of malignancy in the hyperkeratotic marginal zone (lower left corner) and the greater degree of anaplasia in the central eroded zone (upper right corner) (×75).

Clinically, Bowen's epithelioma is not entirely characteristic and can be more accurately diagnosed only by a complete excisional biopsy study. In the more advanced phase, ulceration and invasion are likely to develop with an advance in the degree of malignancy from a Broder's Grade 0 classification to Grade 2 or 3. This transformation has been previously described in 2 per cent or more of the glabrous skin lesions.

In the case herein reported, these evolutionary malignant changes occurred in a patient in whom a known anal tumor had been present for about 25 years. There was a recurrence, with the development of an invasive squamous cell malignancy, four years after an incomplete local excision of a chronic low-grade intraepidermal anal cancer. The treatment for any chronic anal lesion, therefore, should obviously be total excision, and careful microscopic examination of the entire tumor, before the transformation to an anaplastic and invasive tumor can develop.

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Social Security Says:

"THE FOLLOWING TABLE shows the present tax rates and the scheduled increases (on $4.200 wage base):

Calendar year	Employee	Employer	Self-Employed
1956	2 %	2 %	3 %
1957-59	2¼%	2¼%	3⅜%
1960-64	2¾%	2¾%	4⅛%
1965-69	3¼%	3¼%	4⅞%
1970-74	3¾%	3¾%	5⅝%
1975 and after	4¼%	4¼%	6⅜%

In other words: A recent announcement stated that the Social Security system is in trouble. Benefit funds are melting as applications pour in at a rate in excess of federal estimates. Health, Education and Welfare Secretary M. H. Folsom was quick to say that expenditures may exceed income in 1959, but higher taxes in 1960 will cover the deficit. Check the chart above for proof that our children will be paying the bills for our benefits.

—From the Department of Public Relations, American Medical Association

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DONALD D. LUM, M.D. . . . . Alameda
IVAN C. HERON, M.D. . . . . San Francisco
JAMES C. DOYLE, M.D. . . . . Beverly Hills
ALBERT C. DANIELS, M.D. (ex-officio) . . San Francisco
DWIGHT L. WILBUR, M.D. . . . . . . San Francisco

EDITORIAL

Foreign Interns and Residents

Possibility of a break-through in the knotty problem of handling interns and residents in American hospitals who come from foreign medical schools appears in the opening of the office of the Educational Council for Foreign Medical Graduates.

Just established as a joint effort by four medical and hospital organizations, the Council has now set up offices in Evanston, Illinois, under the direction of Doctor Dean F. Smiley, former secretary of the Association of American Medical Colleges. It is sponsored by the American Medical Association, American Hospital Association, Association of American Medical Colleges and the Federation of State Medical Boards of the United States.

Financial support for the first two years of operation will come from the sponsoring bodies and from the Kellogg Foundation and the Rockefeller Foundation.

Opening of this headquarters climaxes about three years of intensive planning by the agencies involved, during which time the multitudinous problems raised in considering the training of foreign medical graduates in this country were reduced to the fundamentals which would be of interest in all states of the nation. Local differences in laws and policies remain, but the basic questions which would require answers in all states have now been concentrated in one agency which has the solid backing of responsible organizations.

Functioning under a ten-man Board of Trustees, the Council will furnish information services to foreign medical school graduates in their own countries, advising them of the opportunities and possibilities of securing intern and resident training in the United States. At the same time, it will screen all applicants for such training and provide reports for United States hospitals on (a) the basic training of the applicant, (b) the adequacy of his knowledge of the English language for purposes of his American training, and (c) his general knowledge of medicine, as disclosed by an examination, to qualify him for assuming an American internship.

The Board of Trustees will include two representatives named by each of the four sponsoring organizations, one by the U. S. Department of Defense and one by the U. S. Department of Health, Education and Welfare. President of the board is Doctor J. Murray Kinsman, dean of the University of Louisville School of Medicine.

Educational credentials will provide certified information that the applicant has met the minimal standard of 18 years of formal education, at least four years in a bona fide medical school, but excluding hospital training.

The certification of an applicant's knowledge of the English language will attest his adequacy in English to assume an internship in an American hospital. The final certification, on his general knowledge of medicine, will result from the applicant's successfully passing the American Medical Qualification Examination to be given by the Council.

Results of this three-way screening process will be made available to hospitals, state licensing boards and designated specialty boards in this country.

Here at last is the beginning of a possible answer to the problems which have plagued hospitals, in California as well as across the country, in their attempts to secure foreign graduates for house officer positions for which insufficient American graduates are available.

Graduates of foreign medical schools are currently able to undertake internships in California under three different sections of state licensing laws. One of these permits graduates of foreign medical schools who are in the United States on a visitor's visa and who intend to return to their home countries following their postgraduate training, to serve in hospitals affiliated with the recognized medical schools in the state for a limited period. The requirement of medical school affiliation naturally limits the number of hospitals which can secure and train these students.

A second category is that of the foreign graduate who wishes to enter this country and to secure a California license to practice medicine and surgery. This applicant is required to take an initial written examination. If he passes this, he must then take two years of internship in an approved hospital, at least one year of which must be spent in a California hospital. If he successfully passes this period, he must then take both an oral and a clinical examination leading to the issuance of a license.

The third group consists of American citizens who have graduated from foreign medical schools. These applicants must spend a year in an approved internship in the United States and then submit to a written examination.

Confusing as these various requirements seem to be, each was adopted for the protection and maintenance of high standards of practice in California.

With the onset of World War II and the concomitant inability of the American Medical Association to continue an inspection and approval program for foreign medical schools, the graduates of such schools became unknown quantities insofar as their acceptability for practice in California was concerned.

This inability to gauge the merits of foreign medical training, coupled with increased demands for house staffs in additional and expanding hospitals, brought forth a demand to admit foreign graduates to fill house staff vacancies. This demand has been insistent and not without bitterness toward the refusal of state licensing authorities to admit for internship training a group of foreign graduates who might accumulate time and experience here and later break down licensing standards.

A recent study by the Institute of International Education and the American Medical Association showed that 6,741 foreign medical graduates served last year as interns or residents in 797 American hospitals. Only four states in the country reported none of these men in training, while 12 reported more than 100 foreign graduates each.

While the present California laws must remain in force until and unless amended, the new program of the Educational Council for Foreign Medical Graduates appears to open up the way for a wider future acceptance of foreign graduates in house staff positions for which they are qualified. With a certification of the years of training, a knowledge of the English language and the passing of a screening examination, these graduates should soon point the way to recognition of those foreign medical schools which produce physicians on a basis comparable with our own schools.

Where the recognition of all foreign schools (Canada excepted), perforce, had to be withdrawn under war conditions, and where adequate inspection and approval techniques have not been worked out since the end of the war, the new program will serve to establish statistical data which should go a long way toward re-establishing a basis for approval of foreign schools.

If, on the basis of the criteria to be used, certain foreign medical schools prove to be the equivalent in education of our own schools, state licensing boards will have a chance to issue their own approval of such schools. Fortunately, California's laws provide for such approval by the Board of Medical Examiners, although that section of the laws is seldom, if ever, used.

If the work of the new Council produces effective means of evaluating and recognizing foreign medical schools, California could grant such recognition and make it possible for additional foreign graduates to receive training in our hospitals and contribute to the care of the sick in California.

At the same time, the existence of the Council and its work of examining applicants in foreign countries is bound to redound to the betterment of standards in foreign medical schools whose graduates do not now come up to the accepted American mark. Schools which could improve their courses to a recognized level could then be assured of turning out better physicians for their own countries, and at the same time, gaining American postgraduate training for their graduates who met the Council's standards.

California MEDICAL ASSOCIATION

NOTICES & REPORTS

C.M.A. Buys Building

Increasing demands for office space to house the expanded activities of the California Medical Association have resulted in the purchase of a downtown San Francisco office building to serve as C.M.A. headquarters.

As a constantly growing organization the C.M.A. has been faced with continuing need for added office space, a need which cannot be met with either facility or efficiency in the present location. The Association has been quartered at 450 Sutter Street, San Francisco, since that building opened in the fall of 1929. Office quarters have been expanded to accommodate increased demands for space but expansion now has finally been halted because of the impossibility of getting additional adjacent area at the present location.

Under the agreement now reached with the California Teachers Association, the C.M.A. will take delivery of a building at 693 Sutter Street, San Francisco, on or after July 1, 1959. The teachers' organization is building a new and larger headquarters in Millbrae.

Terms of the purchase call for the payment of $325.000 for the building, a structure of six stories, mezzanine floor and basement. on July 1, 1959. The teachers' group will continue to occupy the building until that time and to pay rent to the C.M.A. if the new C.T.A. building is not ready for occupation by then.

Negotiations for this purchase have taken place over the past several months, during which time members of the Council and Executive Committee have inspected the property. The final decision to purchase was made by the Council on November 10 when recommendation that the building be bought was made in a report by a special committee composed of Dr. Frank A. MacDonald of Sacramento, Dr. Francis E. West of San Diego, Dr. Ivan C. Heron of San Francisco. Dr. Warren Bostick of San Rafael, Dr. Edward C. Rosenow, Jr., of Pasadena. and Dr. Dwight L. Wilbur of San Francisco, chairman. This committee had an appraisal made and secured the opinions of experts in the

FRANK A. MacDONALD, M.D. . . . . . . President
FRANCIS E. WEST, M.D. . . . . . . President-Elect
JAMES C. DOYLE, M.D. . . . . Speaker
J. NORMAN O'NEILL, M.D. . . . . Vice-Speaker
DONALD D. LUM, M.D. . . . . . Council Chairman
ALBERT C. DANIELS, M.D. . . . . Secretary-Treasurer
IVAN C. HERON, M.D. . Chairman, Executive Committee
DWIGHT L. WILBUR, M.D. . . . . Editor
JOHN HUNTON . . . . Executive Secretary
General Office, 450 Sutter Street, San Francisco 8
ED CLANCY . . . . Director of Public Relations
Southern California Office:
417 South Hill Street, Los Angeles 13 • Phone MAdison 6-0683

real estate, banking and construction industries, all of whom favored the purchase.

Fortunately, the office requirements of the C.M.A. parallel those of the teachers' organization, on a smaller scale. Hence the C.M.A. will be able to use much of the interior construction which the teachers added to 693 Sutter Street after they purchased the property in 1950.

The building is located within a few blocks of the leading downtown hotels, professional buildings and shopping area. It offers a corner location with adequate light and ventilation. On one side it adjoins the Bohemian Club and it is within a block of the Olympic Club, the Woman's Athletic Club and the Marine Memorial Club.

Council Meeting Minutes

Tentative Draft: Minutes of the 427th Meeting of the Council, Ambassador Hotel, Los Angeles, September 14, 1957.

The meeting was called to order by Chairman Lum in the Colonial Room of the Ambassador Hotel, Los Angeles, on Saturday, September 14, 1957, at 9:30 a.m.

Roll Call:

Present were President MacDonald, President-Elect West, Speaker Doyle, Vice-Speaker O'Neill and Councilors MacLaggan, Pearman, Wheeler, Foster, Wadsworth, Harrington, McPharlin, Sherman, Lum, Bostick, Teall, Kirchner, Reynolds, Varden and Rosenow.

Absent for cause, Secretary Daniels, Editor Wilbur, and Councilor Heron.

A quorum present and acting.

Present by invitation were Messrs. Hunton, Thomas, Clancy and Gillette of CMA staff; legal counsel Hassard; Eugene Salisbury of the Public Health League of California; county society executive secretaries Scheuber and Dochtermann of Alameda-Contra Costa, Jensen of Fresno, Geisert of Kern, Young of Los Angeles, Marvin of Riverside, Foster of Sacramento, Nute of San Diego, Neick of San Francisco, Thompson of San Joaquin, Donovan of Santa Clara and DeVere of Stanislaus; Messrs. K. L. Hamman, Wilson Wahlberg and Richard Lyon and Doctors A. E. Larsen and William Gardenier of California Physicians' Service; Richard Blum, Ph.D., consultant; and Doctors Harold Williams, Robert W. Purvis, Joseph F. Sadusk, Jr., Andrew M. Henderson, Jr., Malcolm Watts, Matthew N. Hosmer and Donald A. Charnock; Mr. Ben H. Read of the Public Health League of California and Doctor John Keye, Medical Director of the State Department of Social Welfare.

1. *Minutes for Approval:*

(a) On motion duly made and seconded, minutes of the 426th meeting of the Council, held July 13, 1957, were approved.

(b) On motion duly made and seconded, minutes of the 256th meeting of the Executive Committee, held August 14, 1957, with some amendments from the original draft, were approved.

2. *Membership:*

(a) A report of membership as of September 11, 1957, was received and ordered filed.

(b) On motion duly made and seconded, 19 members who had become delinquent but have subsequently cleared their dues arrearage, were voted reinstatement.

(c) On motion duly made and seconded, three applicants for Associate Membership were voted such membership. These were: Royal L. Brown, Riverside County; and Walter Coulson and Harriet B. Hanson, San Francisco County.

(d) On motion duly made and seconded, two applicants were granted reduction of dues because of prolonged illness or postgraduate study.

3. *Financial:*

(a) A report of bank balances and other items as of September 11, 1957, was presented and ordered filed.

(b) A report of income and expenditures for August and the first two months of the fiscal year was received and ordered filed.

4. *Medical Review and Advisory Board:*

(a) Doctor Joseph F. Sadusk, Jr., as chairman of the Special Committee for Liaison with the State Bar, presented a written report jointly concurred in by the C.M.A. and State Bar committees, proposing the establishment of panels of expert witnesses for medical malpractice cases on a local basis. The Council amended the report by changing the first recommendation of the committee to read as follows: "That the professional liability medical panel formulation for professional liability be approved, territorial divisions to be determined by practical considerations where necessary." As amended, the report as a whole was approved.

(b) Doctor Sadusk, chairman of the Medical Review and Advisory Board, reported that the Board had voted to establish study committees to review various procedures which might be controversial. After discussion it was regularly moved, seconded and voted not to approve such committee activities.

(c) Doctor Sadusk reported that questions had arisen relative to physicians carrying their professional liability insurance coverage individually or through hospitals with which they were associated. He reported that the Board had adopted a statement as follows:

"*Resolved:* That it is in the interest of physicians to carry their malpractice insurance protection individually or through their own organizations and it is not in the interest of physicians to carry such insurance with other groups or institutions; that there are various types of conflict of interests with non-medical groups or institutions and that this statement of policy be transmitted to the California Hospital Association and to interested medical organizations."

On motion duly made and seconded, it was voted to approve this statement.

(d) On motion duly made and seconded, it was voted to suggest to the editor the publication in California Medicine of an article on malpractice insurance prepared by representatives of the Medical Review and Advisory Board.

(e) Doctor Sadusk reported that the Board had voted to secure for showing, two films produced by the American Medical Association and had authorized its executive secretary to prepare an outline for a scientific exhibit. Doctor Sadusk also reviewed a study made following a television program earlier in the year, the study showing that public opinion relative to malpractice had not been significantly changed by this program.

(f) The Medical Review and Advisory Board has reviewed the 1955-1956 psychological studies made for it and requested the Council to confirm its opinion that this work be considered a valid study and the reports be condensed for distribution to all Association members. On motion duly made and seconded, this request was voted approval.

(g) Discussion was held on the employment of an executive director of the Medical Review and Advisory Board and two possible candidates were considered. After discussion, it was regularly moved, seconded and voted to table consideration of replacing the executive director pending a review of all Association activities and operations. Pending completion of such review, it was understood that the Medical Review and Advisory Board continue current activities with its current staff without expansion of activities and that it report its progress to the Executive Committee.

5. *Survey of Association:*

(a) On motion duly made and seconded, it was voted to retain Robert Heller & Associates, Inc., of Cleveland to survey the activities, practices and structure of the California Medical Association, such survey to include planning for future growth and physical facilities.

(b) Mr. Hunton presented photographs and financial data on a building which is available for purchase and which would apparently supply adequate space for future growth of the Association. On motion duly made and seconded, it was voted to approve such a purchase in principle and to refer the proposal to the Executive Committee.

6. *Blood Banking:*

Discussion was held on blood banking activities and their relationship to the public relations program. On motion duly made and seconded, it was voted to consider this matter at the next meeting of the Council.

7. *Relations with Other Professional Groups:*

On motion duly made and seconded, it was voted to refer to the Committee on Other Professions the question of the propriety of physicians consulting with other healing professions.

8. *State Department of Public Health:*

Doctor Frederic M. Kriete of the State Department of Public Health reported on the status of Asiatic flu cases and the prospects for adequate supplies of vaccine for this disease. He reported that the vaccine developed and now under production by six pharmaceutical producers had apparently demonstrated its effectiveness and safety.

9. *Welfare Medical Programs:*

Discussion was had on request of a county medical society that the fiscal agent for the welfare medical care program be authorized to handle payments for services that are excluded from the existing contract between the State Department of Social Welfare and C.P.S. On motion duly made and seconded it was voted to reexamine the provisions contained in the present contract between the State Department of Social Welfare and C.P.S. regarding the services and supplies for which C.P.S. will act as fiscal agent.

10. *Commission on Medical Services:*

Doctor Harrington presented several requests from the Committee on Fees of the Commission on Medical Services:

(a) The committee recommended that the Relative Value Studies, on a unit value of $5 for all sections, be considered the standard for both state and federal programs. On motion duly made and seconded, this was approved.

(b) On the Medicare program, it was agreed to await the results of a meeting between American Medical Association and Army representatives before seeking fee schedule changes.

(c) On the rehabilitation program, it was regularly moved, seconded and voted to approve a $5 unit value based on the Relative Value Studies.

(d) On the Crippled Children's program, it was regularly moved, seconded and voted to secure further information from the State Department of Public Health before proceeding with a proposal that present fees be adjusted.

(e) The committee reported that it had met with representatives of the California Hospital Association in an effort to eliminate per diem allowances for hospitalization which may include fees for certain professional services.

11. *Committee on Other Professions:*

A report of the Committee on Other Professions, suggesting that chiropodists' services be recognized and compensated for by California Physicians' Service, was presented and, on motion duly made and seconded, was approved.

12. *Young Physicians:*

At the request of the San Francisco Medical Society, approval was given for the continuation of a program to orient young physicians and medical students in economic and public relations factors.

On motion duly made and seconded, it was voted to appropriate $2,000 to assist in this program.

13. *California Physicians' Service:*

Doctor T. Eric Reynolds reported, as president of California Physicians' Service, that more than $2,000,000 in "Medicare" claims have been processed to date. He also reported on other C.P.S. activities and on plans for handling the welfare medical care program.

14. *Commission on Medical Education:*

Doctor Rosenow, chairman of the Commission on Medical Education, reported that an insurance company had agreed to underwrite the cost of a program on the socio-economic factors of medicine, to be sponsored by three medical schools and the medical associations of Los Angeles and Orange Counties. On motion duly made and seconded, it was voted that the Association also cosponsor this program.

15. *Welfare Medical Care Program:*

Doctor Harrington reported that the schedule of fees for procedures usually done in the home or office needed enlargement for administration of the welfare medical care program. On motion duly made and seconded. it was voted that a complete schedule be prepared, providing that only those procedures ordinarily done in the home or office be subject to compensation.

16. *Public Relations:*

Mr. Clancy gave a brief report on a labor health conference recently held in Santa Barbara and suggested that a labor panel be developed for appearance on the annual meeting of county society officers in early 1958. It was agreed that this plan be followed.

On motion duly made and seconded, it was voted to appoint Doctor Werner F. Hoyt as a member of the Committee on Public Relations, to succeed the late Ewing L. Turner. It was also voted to name Doctors Francis E. West and J. Lafe Ludwig as members of this committee.

17. *Appointments:*

(a) On motion duly made and seconded, the suggestion of the Executive Committee was approved, namely, that Doctor Werner F. Hoyt of Mt. Shasta be appointed a member of the Council to succeed the late Hollis L. Carey.

(b) On motion duly made and seconded, it was voted to appoint Doctor H. Gordon MacLean as chairman of the Commission on Medical Services, to succeed the late Hollis L. Carey.

(c) On motion duly made and seconded. it was voted to appoint Doctor O. W. Wheeler as a member of the Committee on State Medical Services, to succeed the late Hollis L. Carey.

Adjournment:

There being no further business to come before it, the Council meeting was adjourned at 6:25 p.m. out of the memory of Doctor Hollis L. Carey.

Donald D. Lum, M.D., *Chairman*
James C. Doyle, M.D., *Acting Secretary*

In Memoriam

Adams, Eldridge S. Died in Los Angeles, October 18, 1957, aged 65, of heart disease. Graduate of Rush Medical College, Chicago, 1914. Licensed in California in 1953. Doctor Adams was a member of the Los Angeles County Medical Association.

◆

Anderson, Alexander Campbell. Died in San Francisco, October 14, 1957, aged 72. Graduate of the College of Physicians and Surgeons of San Francisco, 1909. Licensed in California in 1913. Doctor Anderson was a member of the Sonoma County Medical Society.

◆

Bell, Hugh Wallace. Died while on a hunting trip in the Breckenridge Mountain area in 1955, aged 70. The body was found in October 1957. Graduate of the Chicago College of Medicine and Surgery, 1915. Licensed in California in 1922. Doctor Bell was a retired member of the Kern County Medical Society and the California Medical Association, and an associate member of the American Medical Association.

◆

Fainer, Emanuel M. Died in Los Angeles, October 12, 1957, aged 68, of coronary thrombosis. Graduate of the Chicago Medical School, 1917. Licensed in California in 1922. Doctor Fainer was a retired member of the Los Angeles County Medical Association and the California Medical Association, and an associate member of the American Medical Association.

◆

Floreth, Otto P. Died October 10, 1957, aged 76. Graduate of the St. Louis University of Medicine. Licensed in California in 1914. Doctor Floreth was a member of the Solano County Medical Society.

◆

Gowen, Thomas Francis. Died in Costa Mesa, October 19, 1957, aged 52, of heart disease. Graduate of Temple University School of Medicine, Philadelphia, 1929. Licensed in California in 1952. Doctor Gowen was a member of the Orange County Medical Association.

◆

Gummess, Karl Chester. Died October 17, 1957, aged 68. Graduate of the College of Physicians and Surgeons, Los Angeles, 1916. Licensed in California in 1916. Doctor Gummess was a member of the Los Angeles County Medical Association.

◆

Jones, Charles R. Died in San Diego, October 23, 1957, aged 80. Graduate of Northwestern University Medical School, Chicago, 1901. Licensed in California in 1918. Doctor Jones was a retired member of the San Diego County Medical Society and the California Medical Association, and an associate member of the American Medical Association.

◆

O'Hara, Joseph Jerome. Died in San Diego, October 20, 1957, aged 56, of cancer of the lung. Graduate of the Stanford University School of Medicine, Stanford-San Francisco, 1929. Licensed in California in 1929. Doctor O'Hara was a member of the San Diego County Medical Society.

California Medical Association

1958 *Annual Session*

AMBASSADOR HOTEL, LOS ANGELES

April 27-30

THREE POSTGRADUATE COURSES

MONDAY
TUESDAY
WEDNESDAY
9:00 a.m.-noon

Liver Diseases—A NINE-HOUR COURSE
U.S.C. SCHOOL OF MEDICINE

Abdominal Pain—A NINE-HOUR COURSE
U.C.L.A. SCHOOL OF MEDICINE

Management of Trauma—A NINE-HOUR COURSE
COLLEGE OF MEDICAL EVANGELISTS

A FEE WILL BE CHARGED FOR THE ABOVE COURSES

FOUR DAYS

GENERAL SCIENTIFIC MEETINGS
TECHNICAL EXHIBITS · SCIENTIFIC EXHIBITS
MEDICAL MOTION PICTURES

*

PRESIDENT'S DINNER DANCE

TUESDAY, APRIL 29
COCOANUT GROVE, AMBASSADOR HOTEL

*

HOUSE OF DELEGATES

SUNDAY, APRIL 27 AND WEDNESDAY, APRIL 30

REGISTRATION DAILY · 9:00 a.m. to 5:00 p.m. · NO REGISTRATION FEE

Please make hotel room reservations only through C.M.A. office in San Francisco
(Use reservation request form on opposite page)

APPLICATION FOR HOUSING ACCOMMODATIONS

FOR YOUR CONVENIENCE in making hotel reservations for the coming meeting of the **California Medical Association,** April 27 to 30, 1958, Los Angeles, hotels and their rates are at the right. Use the form at the bottom of this page, indicating your first and second choice. Because of the limited number of single rooms available, you will stand a much better chance of securing accommodations of your choice if your request calls for rooms to be occupied by two or more persons. **All requests for reservations must give definite date and hour of arrival as well as definite date and approximate hour of departure; also names and addresses of all occupants of hotel rooms must be included.**

ALL RESERVATIONS MUST BE RECEIVED BEFORE: APRIL 1, 1958

Eighty-seventh Annual Session

CALIFORNIA MEDICAL ASSOCIATION

Los Angeles, California

APRIL 27-30, 1958

HOTEL ROOM RATES *

	Single	Twin Beds	Suites
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3400 Wilshire Boulevard			
Main Building	9.00-19.00	12.00-22.00	28.00-38.00
Garden Studios	17.00-23.00	22.00-30.00	40.00-54.00
CHAPMAN PARK HOTEL			
3405 Wilshire Boulevard		12.00-16.00	20.00-25.00
THE GAYLORD HOTEL			
3355 Wilshire Boulevard	8.00	10.50	18.00
HOTEL CHANCELLOR			
3191 West Seventh Street	7.00- 8.00	10.00-12.00	
SHERATON-TOWN HOUSE			
2961 Wilshire Boulevard	11.00-18.00	16.00-23.00	31.00

***The above quoted rates are existing rates but are subject to any change which may be made in the future.**

CALIFORNIA MEDICAL ASSOCIATION
450 Sutter Street—Room 2000
San Francisco 8, California

Please reserve the following accommodations for the 87th Annual Session of the California Medical Association, in Los Angeles April 27 to 30, 1958.

Single Room $.................... Twin Bedded Room $....................

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ARRIVING AT HOTEL (date).................... Hour:..........A.M..........P.M. } Hotel reservations will be held until

Leaving (date).................... Hour:..........A.M..........P.M. } 6:00 P.M., unless otherwise notified

THE NAME OF EACH HOTEL GUEST MUST BE LISTED. Therefore, please include the names of both persons for each twin-bedded room requested. Names and addresses of all persons for whom you are requesting reservations and who will occupy the rooms asked for:

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Individual Requesting Reservations—Please print or type Delegate?.......... Alternate?..........

Name.................... County....................

Address.................... City and State....................

WOMAN'S AUXILIARY
TO THE CALIFORNIA MEDICAL ASSOCIATION

Membership

On a recent trip south, the president of a county society Auxiliary asked me to speak on membership—not the usual "How to get members" and "How to hold them" but rather something on what membership in the Auxiliary can mean to the individual physician's wife, and what her membership can mean to the Auxiliary.

Membership in the Auxiliary undoubtedly means a number of different things to different women. To me, and many more like me, it is an opportunity to serve American medicine. It is service to others, mutual understanding, a joint endeavor that consists of working on a problem together. Certainly to serve American medicine under the guidance and direction of our physician husbands is a very real reason why we should belong to the Auxiliary.

I have just returned from the fall conference in Chicago where state presidents and presidents-elect met with national officers to review objectives and activities as they relate to them. This year, instead of panel discussions, group discussion was employed. The opening subject was "Membership." The questions were: How many come to our meetings? Why do they come? Why won't they come? How can we improve our techniques so that members and potential members will be interested? Tactics of capturing the interest and enthusiasm of interns' wives. Who can help with this problem?

From these questions we can see that this is a topic discussed from Maine to California. Comments made for instance, were that frequently business meetings were too long, programs were poor, chairmen were not adequately prepared, hospitality for new members was lacking, notices were sent too late. And again and again we returned to the subject of the many club activities open to women nowadays, and that women will attend the meeting that has the best program.

To enroll new members while retaining old members requires the cooperation of every member of the Auxiliary. Membership in the Auxiliary is a privilege and offers an opportunity for service and participation in all phases of the Auxiliary program with congenial friends.

We must recognize that in the local county Auxiliary, where the fresh and imaginative ideas emerge, we must strive for better human relations in order to answer any of the questions, and we must learn to improve our procedures of working together. Our Auxiliary was founded on the concept of the value of group activity, of working with others. Health is our concern, but there must be a joint endeavor between an individual and other groups and agencies to protect it.

As you, our husbands, read this, I'm sure you are wondering how membership applies to you. You should encourage your wife to become a member, to attend the meetings and, if she has the time and energy, to become a leader in her Auxiliary. There are many ways to serve the Auxiliary through our various projects and programs; certainly as wives of physicians we become members of the distaff side of medicine and pledge our devotion to assist the American Medical Association with its program for the advancement of medicine and public health.

We know that we do our most productive work under the guidance of the medical society. We want you to realize that physicians' wives play a prominent role in the life of the community, and that one of our purposes is to help the public at large understand the functions, policies and aims of the medical profession. Another phase of the work delegated to us is to promote educational and service activities relating to health and medical care; and still another is to make each Auxiliary member aware of her responsibility as an ambassador of good will for the medical profession. Thus we know that the Auxiliary helps mold public opinion for the improvement of the health of the people and the advancement of medical care. We know that some of the best public relations for the medical profession is done when physicians' wives serve on health boards in their communities. Although a wife so serving may not be directly representing the Auxiliary, she nevertheless is a liaison between the two groups, and this is one of the answers to what her membership can mean to the Auxiliary.

California is a leader in many fields of Auxiliary endeavor; one is membership and organization, our efficiency in operation, the combining of several small auxiliaries to make one good sized productive auxiliary. Another is the branch system, and we recognize the geographic convenience of this, again strengthening our local Auxiliary. We are also in the forefront with our Nurse Recruitment program. The experience and literature of our program is being used by other states, and the combined work of our counties makes a worthwhile impressive picture, and our California story of Nurse Recruitment is an inspiration to others. Again, an opportunity for members to share in the program of serving American medicine, through the Auxiliary.

Then we come to the question of capturing the interest and enthusiasm of interns' wives. Just a little over six years ago the Student American Medical Association was organized. In the period since the first constitutional convention this association of medical students and interns has grown from a membership of about 11,000 to its present total of more than 32,000, in 72 medical schools and hospitals throughout the nation. The early years have brought S.A.M.A. recognition from groups in organized medicine that strive for similar goals, and this past year in Philadelphia the Auxiliary to S.A.M.A. was born. Certainly with the enthusiasm shown by this new group we should have no fear in the future regarding the role of the intern's wife.

It is true, however, that we, the Woman's Auxiliary, do need the help and encouragement of the Medical Association; and that we in turn will strive to help you in your program of health education.

Mrs. Leonard D. Offield
President, Woman's Auxiliary to the
California Medical Association

INFORMATION

The New Director of Mental Hygiene

During 1957 a special committee appointed by Governor Knight conducted a nationwide canvass for individuals with the professional and administrative qualifications to head California's Department of Mental Hygiene. In September their report stated, "Among all those who were considered, Dr. Porter's qualifications are outstanding both as to professional competence, administrative ability, and first-hand knowledge of the mental hygiene program of the state." Thus, Dr. Marshall E. Porter, a 47-year-old governmental career psychiatrist whose entire professional life since graduation from the University of California Medical School in 1933, other than military service, has been in the State Department of Mental Hygiene, finds himself in charge of one of the largest state agencies.

As Director of Mental Hygiene, Dr. Porter will be at the apex of a pyramid of responsibility made up of nearly 60,000 patients, 17,000 employees, a yearly budget of over $100,000,000 and a less clearly obvious but just as pressing responsibility for research, professional training and prevention in the mental illnesses. He knows his department, especially its responsibilities and problems well, having served an internship at Agnews State Hospital, then as psychiatrist at Sonoma, Camarillo and Mendocino State hospitals. In 1942 he became neuropsychiatrist for the Army Air Force Rehabilitation Services, holding the rank of major at discharge.

In 1946 he became assistant medical director at Sonoma, and superintendent and medical director in February 1949. The administrative skill he demonstrated led to his appointment in August 1956 as a deputy director of the State Department of Mental Hygiene, responsible for the medical and psychiatric treatment programs in the State mental hospitals.

Dr. Porter faces serious problems in his new job. Of 298 ward doctors in the state hospitals, only 73 are psychiatrists: confronting him is the anomaly of a department running a specialty treatment program without specialists. An increased in-training program for ward-level physicians will be essential. Another problem is the recruitment of physicians to fill the many vacant staff positions.

Dr. Porter's philosophy is that the answers to personnel shortages, preventive mental health programs, research, training, and the over-all treatment program for mental illness will develop with the help and understanding of the general public and medical profession. "These problems are much too big and affect too many people to be the responsibility of a single government agency," he said. "It is everybody's problem. The long-range answer lies not so much in shifting doctors to state hospitals as in shifting more of the care of mental and emotional illness to doctors and facilities in the local community. The passage of the Community Mental Health Services bill [Short-Doyle Act] through the sponsorship and leadership of the California Medical Association makes it possible to begin a reoriented program."

In the future, as part of this shift, he sees greater use of day and night treatment at all psychiatric facilities, more psychiatric units in general and private hospitals, an increase in outpatient and rehabilitation facilities, a more enlightened attitude in the general public and a more skillful attitude in those who deal with people day by day. Especially important is a continuation of the trend toward more concern on the part of the family physician with the problems either engendered by or compounded by emotional trouble.

Perhaps Dr. Porter's most outstanding trait is his policy of making important decisions only after thorough discussion with the persons and groups best acquainted with the matter under consideration. Speaking to the California Medical Association Council on November 10, Dr. Porter said that his department would keep concerned organizations constantly informed and would always seek their advice on matters of mutual interest.

The California Department of Mental Hygiene is in the hands of a competent, energetic and dedicated administrator.

NEWS & NOTES

NATIONAL • STATE • COUNTY

LOS ANGELES

Dr. J. M. de los Reyes, Los Angeles, recently was elected president of the California State Board of Medical Examiners for the year 1957-1958. He succeeded Dr. Clayton Mote of San Francisco, whose term expired. Dr. Charles E. von Geldern of Sacramento was elected vice-president of the Board.

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Dr. Edson D. Beebe has been elected president of the Long Beach branch of the Los Angeles County Medical Association, succeeding Dr. L. L. Wiltse. Dr. Maurice M. Rosenbaum was elected vice-president and Dr. F. Harriman Jones, secretary-treasurer.

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Dr. Morris L. Grover took over his duties as health officer for the city of Pasadena, November 1. Dr. Grover was until recently chief of preventive medicine at the Army's guided missile center at Fort Sill, Oklahoma. He will replace Dr. Wilbur J. Menke, Jr., who resigned last June. Dr. Alfred J. Holmes of Pasadena had been serving as interim health officer.

SAN FRANCISCO

Dr. John W. Cline, San Francisco, chairman of the Cancer Commission of the California Medical Association, was elected a director of the American Cancer Society at the recent annual meeting of the organization held in New York City. Two Californians were reelected to the board of directors—Dr. Wendell M. Stanley, director of the University of California Virus Laboratory at Berkeley, and Mrs. W. Parmer Fuller, Jr., of Hillsborough.

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Stanford University School of Medicine will present its annual **postgraduate conference in ophthalmology** from Monday, March 31 through Friday, April 4, 1958. Registration will be open to physicians who limit their practice to the treatment of diseases of the eye, or eye, ear, nose and throat. Registration will be limited to 30 physicians.

Instructors will be Dr. Dohrmann K. Pischel, Dr. Jerome W. Bettman, Dr. Max Fine, Dr. Earle H. McBain and Dr. Arthur Jampolsky.

Programs and further information may be obtained from the office of the Dean, Stanford University School of Medicine, 2398 Sacramento Street, San Francisco 15.

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The American Psychiatric Association will hold its 1958 annual meeting in San Francisco, May 12 to 16. Further information may be obtained from Mr. Austin M. Davies, executive secretary, 1270 Avenue of the Americas, New York, or from Dr. Alfred Auerback, chairman on arrangements, 450 Sutter Street, San Francisco.

The Hawaiian divisional meeting of the American Psychiatric Association will be held May 17 to 22, 1958, in Honolulu. Dr. Alfred Auerback can also be addressed for information on this meeting.

Dr. E. Horace Klabunde of San Francisco was elected vice-president of the American Society of Plastic and Reconstructive Surgery at the organization's annual meeting last month in San Francisco. In this post Dr. Klabunde is in line for the presidency in two years. Installed as president at the meeting was Dr. Wallace H. Steffensen of Grand Rapids, Michigan.

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Dr. Francis L. Chamberlain of San Francisco was elected president-elect of the American Heart Association at the recent annual meeting in Chicago. Dr. Chamberlain is a past president of the California Heart Association and the San Francisco Heart Association.

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Two grants in aid of cancer research were announced recently—one by the Damon Runyon Memorial Fund for a member of the Stanford faculty and the other by the American Cancer Society to support a project at the University of California School of Medicine. Dr. William P. Creger, associate professor of medicine at Stanford University School of Medicine was awarded $12,000 by the Runyon Fund to continue research on the possible relationship between gastric cancer and the various blood groups. The Cancer Society's grant, $4,500, was made to Dr. Theodore Althausen, professor of medicine at U. C., for research on tumors in the thyroid and pituitary gland in rats.

GENERAL

Dr. Carrol B. Andrews of Sonoma was elected president-elect of the California Academy of General Practice when the group held its Ninth Annual Scientific Assembly in Los Angeles, November 3 to 6. Dr. Antonio J. Franzi of San Francisco was installed as president, succeeding Dr. Joseph W. Telford of San Diego.

Other officers elected were Dr. Burt L. Davis of Palo Alto, speaker of the congress, and Dr. Ralph L. Bennett of Los Angeles, vice-speaker. Dr. J. Alison Cary, Morgan Hill, was elected delegate to the American Academy of General Practice, and Dr. Daniel A. Tobin, Sacramento, alternate. New directors named were Dr. Harry E. Barker, Ventura, and Dr. Alexander Fraser, San Francisco.

The Academy's tenth annual scientific assembly is scheduled for San Francisco in October, 1958.

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New members who enroll in the United States Committee of the **World Medical Association** before the end of this year will have their membership credited to the 1958 calendar year, according to a recent announcement from James E. Bryan, membership director. Mr. Bryan said that 725 new members had been enrolled up to October 1 this year.

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The American Academy of General Practice will hold its tenth annual scientific assembly in Dallas, March 24 to 27, 1958. The Academy's policy-making Congress of Delegates will convene at 2 p.m., Saturday, March 22, two days before the opening of the scientific assembly.

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Dr. Merle Cosand, health officer of San Bernardino County, was elected president of the California Conference of Local Health Officers at its meeting in San Francisco, October 22 to 24. He succeeds Dr. Ellis D. Sox, San Francisco public health director. Dr. Henrik Blum, Contra Costa County health officer, was elected vice-president, and Dr. Everett Stone, health officer of Riverside County, was elected secretary.

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The Bureau of Old-Age and Survivors Insurance, Social Security Administration, has announced **vacancies for full-**

time and part-time medical consultants in its Division of Disability Operations. The Division is responsible for making determinations of disability under the disability insurance provisions of the Social Security Act. These positions are available in the headquarters offices in Baltimore, Maryland.

The full-time positions are under Civil Service and incumbents will receive all Federal Civil Service benefits such as retirement, life insurance, and vacation and sick leave privileges. The salary range is $10,065 to $11,395 a year depending on the individual's qualifications. The salary in part-time positions is paid on a per diem basis.

Physicians interested in either full-time or part-time positions may get further information by writing to Dr. Arthur B. Price, Chief Medical Consultant, Division of Disability Operations, 200 West Baltimore Street, Baltimore 1, Maryland.

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The City of Hope Medical Center at Duarte has announced the availability of Frank L. Chance Memorial **fellowships in hematology.** The fellowships are intended to provide an unusual opportunity to study and manage a large number of patients with various blood dyscrasias, with particular emphasis being placed on leukemias and lymphomas, the announcement said. Candidates must be graduates of recognized American Medical Association approved medical schools and preference will be given to those who have completed or are in the process of completing two years of postgraduate training in medicine. The fellowships will be for a period of one year and may be renewed for a second year. The salary stipend depends on previous training. The minimum is $4,800. Maintenance will also be provided. Inquiries should be addressed to Edward Shanbrom, M.D., City of Hope Medical Center, Duarte, California.

POSTGRADUATE
EDUCATION NOTICES

THIS BULLETIN of the dates of postgraduate education programs and the meetings of various medical organizations in California is supplied by the Committee on Postgraduate Activities of the California Medical Association. In order that they may be listed here, please send communications relating to your future medical or surgical programs to: Mrs. Margaret H. Griffith, Director, Postgraduate Activities, California Medical Association, 417 South Hill Street, Los Angeles 13.

UNIVERSITY OF CALIFORNIA AT LOS ANGELES

Management of Surgical Emergencies. Thursday, January 23, 1958. Six hours.†

Disorders of Fluid and Electrolyte Metabolism, Etiology and Management. Tuesdays, February 25 to May 13, 1958. Twenty-four hours.†

General Surgery. Wednesday, starts February 26. Twenty-four hours.†

Symposium on Connective Tissue (Collagen) Diseases. Friday and Saturday, March 14 and 15, 1958. Nine hours.†

Recent Advances in Clinical Hematology. Wednesday. Date to be announced. Six hours.†

Contact: Thomas H. Sternberg, M.D., Assistant Dean for Postgraduate Medical Education, U.C.L.A., Los Angeles 24. BRadshaw 2-8911, Ext. 202.

UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

Psychiatry. Mount Zion Hospital, Thursday to Sunday, January 9 to 12.*

Newborn Medicine (Physicians). Monday and Tuesday, January 13 and 14. Fourteen hours. Fee: $40.00.

Newborn Medicine (Nurses). Wednesday, January 15. Seven hours.†

Ophthalmoscopy in General Practice and Pediatrics. Wednesday and Thursday, January 15 and 16, 1958. Fourteen hours.†

Postgraduate Dermatology Clinic. Friday and Saturday, January 17 and 18, 1958. Fourteen hours.†

Nontraumatic Emergencies. Franklin Hospital, Friday and Saturday, January 17 and 18. Fourteen hours. Fee: $40.00.

Seminars in Hematology. Children's Hospital, Saturday, January 25. Seven hours. Fee: $12.50.

Patho-Physiology of the Gastrointestinal Tract. Sunday through Tuesday, January 26 through 28, 1958. Seventeen hours.†

Postgraduate Seminars in Pharmacy. Thursday to Saturday, February 13 to 15. Fifteen hours. Fee: $25.00.

Medical Emergencies. (Herrick Hospital, Berkeley). Thursday through Saturday, February 20, 21 and 22. Twenty hours.†

Course for Physicians in General Practice. Monday through Friday, February 24 to 28, 1958. Thirty-two hours.†

Children's Hospital Medical Seminar. Saturday, March 29.*

Fundamental Principles of Radioactivity and the Diagnostic and Therapeutic Uses of Radioisotopes. Two or three month course limited to one enrollee per month. Per month, $250.00.

Contact: Seymour M. Farber, M.D., Head, Postgraduate Instruction, Office of Medical Extension, University of California Medical Center, San Francisco 22. MOntrose 4-3600, Ext. 665.

STANFORD UNIVERSITY SCHOOL OF MEDICINE

Morning Clinical Conferences, each Monday, Room 515. *Contact:* D. H. Pischel, M.D., Professor, Division of Ophthalmology, Stanford University School of Medicine, 2398 Sacramento St., San Francisco 15.

UNIVERSITY OF SOUTHERN CALIFORNIA, LOS ANGELES

Cardiac Resuscitation. Sponsored by the Los Angeles County Heart Association each Wednesday throughout the year, 4 to 6 p.m. Residents admitted without fee. Tuition for all other physicians: $30.00. (Each session all-inclusive.)

Basic Home Course in Electrocardiography. One year Postgraduate Series, electrocardiogram interpretation by mail. Physicians may register at any time and receive all 52 issues. Fifty-two weeks. Fee: $100.00.

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†Fee to be announced.
*Hours and Fees to be announced.

Advance Home Course in Electrocardiography. One year postgraduate series, electrocardiogram interpretation by mail. Fifty-two issues: $85.00. Physicians may register at any time.

Special Announcement: From August 5 to August 21, 1958, the University of Southern California School of Medicine will hold a postgraduate course in Honolulu and on board the *S.S. Matsonia.* The course will center around actual case histories, which will be used to emphasize diagnostic and therapeutic features.

Contact: Phil R. Manning, M.D., Director, Postgraduate Division, University of Southern California School of Medicine, 2025 Zonal Avenue, Los Angeles 33. CApital 5-1511.

COLLEGE OF MEDICAL EVANGELISTS

Vue-Vox Postgraduate Refresher Courses. Courses are made up of four or more half-hour lectures each, recorded on hi-fi magnetic tape and illustrated by 35-mm. filmstrips or slides in full color, and adapted for use on any standard tape recorder and filmstrip or slide projector, automatic or manual.

Contact: Paul D. Foster, M.D., chairman, Committee on Audio-Visual Courses, College of Medical Evangelists School of Medicine, 316 North Bailey St., Los Angeles 33.

CALIFORNIA MEDICAL ASSOCIATION POSTGRADUATE COURSES

POSTGRADUATE INSTITUTES—1958

San Bernardino, Riverside and Orange Counties, in cooperation with College of Medical Evangelists, Arrowhead Springs Hotel, San Bernardino County, February 13 and 14, 1958. Chairman: Elmer O. Carlson, M.D., 756 N. Euclid Ave., Ontario.

West Coast Counties, in cooperation with UCLA School of Medicine, Golden Bough Theater and La Playa Hotel, Carmel, March 6 and 7, 1958. Chairman: Howard C. Miles, M.D., 535 E. Romie Lane, Salinas.

San Joaquin Valley Counties, in cooperation with Stanford University School of Medicine, Hotel Californian, Fresno, March 20 and 21, 1958. Chairman: Henry L. Tiesche, M.D., 1759 Fulton St., Fresno.

North Coast Counties, in cooperation with USC School of Medicine, Hoberg's Resort, Lake County, April 10, 11 and 12, 1958. Chairman: Alfred A. Thurlow, Jr., M.D., 185 Sotoyome Ave., Santa Rosa.

Contact: One of the chairmen listed above, or Mrs. Margaret H. Griffith, Director, Postgraduate Activities, California Medical Association, 417 So. Hill Street, Los Angeles 13. Madison 6-0683.

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Audio Digest Foundation, a nonprofit subsidiary of the C.M.A., now offers (on a subscription basis) a series of hour-long tape recordings designed to keep the physician abreast of current happenings in his particular field. Composed of practice-useful abstracts from 600 leading journals, with short lectures and editorial comments from prominent physicians, Audio Digest offers programs covering general practice, surgery, internal medicine, obstetrics and gynecology, and pediatrics.

Contact: Claron L. Oakley, editor, 1919 Wilshire Blvd., Los Angeles 57.

Medical Dates Bulletin

JANUARY MEETINGS

Southwestern Pediatric Society, Dinner Meeting, University Club, Los Angeles, January 15, 1958, 6:30 p.m. Guest speaker: Dr. Edmund Keeney, Medical Director, Scripps Clinic and Foundation. *Contact:* Robert G. Shirley, M.D., secretary, 11633 San Vicente Blvd., Los Angeles 49.

Southern California Chapter, American College of Surgeons Annual Meeting, El Mirador Hotel, Palm Springs, January 17, 18 and 19, 1958. *Contact:* Max R. Gaspar, M.D., secretary-treasurer, 211 Cherry Avenue, Long Beach 2.

California Conference on Rural Health Annual Meeting, Bakersfield Hacienda, Bakersfield, January 21 and February 1. *Contact:* Glenn Gillette, California Medical Association, 450 Sutter St., San Francisco 8.

Orange County Heart Association 1958 Annual Symposium on Heart Disease, January 25, all day, Disneyland Hotel, Anaheim. *Contact:* Howard G. Buswell, executive director, P. O. Box 1704, Santa Ana.

FEBRUARY MEETINGS

Highland Alameda County Hospital Sixth Annual Postgraduate Symposium, "Dynamics of Metabolic and Endocrine Disease," main auditorium, Highland Alameda County Hospital, Oakland, February 17, 18 and 19, 1958. *Contact:* L. W. Kinsell, M.D., director, 2701 Fourteenth Avenue, Oakland 6.

Colorado State Medical Society Midwinter Clinical Session, February 18 to 21, Shirley-Savoy Hotel, Denver. *Contact:* Harvey T. Sethman, executive secretary, 835 Republic Bldg., Denver 2.

Los Angeles Radiological Society Tenth Annual Midwinter Conference, Biltmore Hotel, Los Angeles, February 22 and 23, 9:30 a.m. *Contact:* John H. Eaton, M.D., secretary-treasurer, 65 N. Madison Ave., Pasadena 1.

MARCH MEETINGS

International College of Surgeons 23rd Annual Congress of U. S. and Canadian Sections 11th Biennial International Congress, March 9 to 13, Hotel Ambassador, Los Angeles. *Contact:* J. M. de los Reyes, M.D., general chairman, 2010 Wilshire Blvd., Los Angeles 57.

California Society of Plastic Surgeons Annual Meeting, March 20 to 22, Del Monte Lodge, Del Monte, California. *Contact:* Benjamin F. Edwards, M.D., 2200 Santa Monica Blvd., Santa Monica.

APRIL MEETINGS

California Tuberculosis and Health Association, California Trudeau Society and the California Conference of Tuberculosis Workers Annual Meeting, Sheraton-Palace Hotel, San Francisco, April 9 through 12, 1958. *Contact:* E. L. Daggett, director public information, 130 Hayes Street, San Francisco 2, HEmlock 1-8771.

Valley Children's Hospital Spring Clinics, April 11 and 12. Roosevelt High School Auditorium, Fresno. *Contact:* Valley Children's Hospital, Fresno.

American College of Obstetricians and Gynecologists, April 21 to 23, Los Angeles. *Contact:* John C. Ullery, M.D., secretary, 15 South Clark St., Chicago 3.

American Academy of Pediatrics Annual Spring Session, Hotel Statler, New York City, April 21 to 23. *Contact:* W. J. Becker, business manager, 1801 Hinman Ave., Evanston, Ill.

American Society of Internal Medicine Annual Meeting, April 26 and 27, 1958, Chalfonte-Haddon Hall, Atlantic City, New Jersey. *Contact:* Claude P. Callaway, M.D., secretary-treasurer, 490 Post Street, San Francisco 2.

California Medical Association Annual Meeting, Ambassador Hotel, Los Angeles, April 27 to 30. *Contact:* John Hunton, executive secretary, 450 Sutter St., San Francisco 8, or Ed Claney, director, Public Relations, 417 South Hill St., Los Angeles 13.

SPRING AND SUMMER MEETINGS

South Dakota Medical Association Annual Meeting, May 17 to 20, Huron, South Dakota. *Contact:* John C. Foster, executive secretary, 300 First National Bank Building, Sioux Falls, S. D.

Western Branch, American Public Health Association Annual Meeting with Canadian Public Health Association, May 18 to 23, Vancouver, B. C. *Contact:* Mrs. L. Amy Darter, secretary-treasurer, 2151 Berkeley Way, Berkeley 4.

American Laryngological Association, May 19 to 20, San Francisco. *Contact:* James H. Maxwell, M.D., secretary, University Hospital, Ann Arbor, Michigan.

American Broncho-Esophagological Association, May 21 to 23, San Francisco. *Contact:* F. Johnson Putney, M.D., secretary, 1719 Rittenhouse Square, Philadelphia, Pa.

California Heart Association Annual Meeting, Scientific Session and Directors Meeting, Hacienda Motel, Fresno, May 23 to 25. *Contact:* J. Keith Thwaites, executive director, 1428 Bush St., San Francisco.

American College of Chest Physicians 24th Annual Meeting, June 18 to 22, San Francisco. *Contact:* Mr. Murray Kornfeld, executive director, 112 East Chestnut St., Chicago 11, Ill.

American Medical Association Annual Meeting, June 23 to 27, San Francisco. *Contact:* American Medical Association, 535 North Dearborn St., Chicago 10.

American Proctologic Society, June 29 to July 3, Los Angeles. *Contact:* Norman D. Nigro, M.D., secretary, 10 Peterboro St., Detroit 1, Michigan.

Washington State Medical Association Annual Convention, September 14 to 17, 1958, Spokane, Washington. *Contact:* Ralph W. Neill, executive secretary, 1309 Seventh Ave., Seattle, Wash.

THE PHYSICIAN'S *Bookshelf*

SPONTANEOUS AND HABITUAL ABORTION—Carl T. Javert, M.D., Professor of Clinical Obstetrics and Gynecology, College of Physicians and Surgeons of Columbia University. The Blakiston Division, McGraw-Hill Book Company, Inc., New York, 1957.

During a period of seven years, ending in 1954, Javert and his associates examined two thousand abortion specimens in the laboratory of obstetric and gynecologic pathology at the New York Hospital. This monograph of some 400 pages is largely an analysis of these specimens and of the patients who produced them. A certain amount of "control" was exercised in the study by using therapeutic and unintentional abortion specimens for comparison. The data were coded on punched cards and ultimately condensed into 95 tables and numerous graphs.

The book is divided into five sections, the first of which describes the methodology of the study and the normal early development of the conceptus, in order to provide a certain amount of background for understanding what follows. Part two comprises about a third of the volume and describes the pathologic features of abortions, with considerable emphasis on defects in the umbilical cord. The third section deals extensively with the clinical aspects of abortion and stresses the apparent importance of decidual hemorrhage as a causative factor.

The fourth section, entitled "psychosomatology," is the *piece de resistance* and it is here that Javert records his interesting views on love, marriage, sex, and psychiatry. He includes his overwhelmingly successful formula (in his hands) for preventing habitual abortion—a scheme revolving around vitamins C, P, and K, and an item labeled TLC (tender loving care). Peace and tranquility are prescribed, but hot baths, girdles, mineral oil and coitus are forbidden. The author admits he has never used placebos in place of the vitamins and excuses himself in part on the ground that "in some drug stores placebos actually cost more than the vitamins!" This part of the book must be read with tongue in cheek, because I suspect this was the mood of the author when much of it was written.

The volume contains nearly 200 illustrations, most of which are excellent photographs and photomicrographs of the laboratory material. There are about fifty cartoon-like line drawings used to illustrate various psychological and clinical situations; these have a certain degree of effectiveness in teaching, but many may consider them undesirable in a seemingly serious scientific publication. The book ends with a brief epilogue which is offered in lieu of chapter summaries, a feature which the author avoided lest the reader be deprived of making his own deductions. There is an extensive bibliography with more than 500 entries, and an adequate index. This monograph is recommended to obstetricians and pathologists in particular, and the short section on trauma as a cause of abortion should be memorized by attorneys who deal with personal injury claims.

Chas. E. McLennan, M.D.

MANAGEMENT OF THE PATIENT WITH HEADACHE—Perry S. MacNeal, M.D., F.A.C.P., Physician to Pennsylvania Hospital, Assistant Professor of Clinical Medicine, Jefferson Medical College; Bernard J. Alpers, M.D., Sc.D. (Med.), F.A.C.P., Professor and Head of the Department of Neurology, Jefferson Medical College; and William R. O'Brien, M.D., F.A.P.A., Psychiatrist and Head of the Department of Psychiatry, Pennsylvania Hospital; Instructor in Psychiatry, Jefferson Medical College. Lea & Febiger, Philadelphia, 1957. 145 pages, $3.50.

This book has as its objective, according to the dust jacket, the presentation of knowledge which will permit family physicians, internists, psychiatrists, neurologists and others to face with confidence any patient whose chief complaint is headache. The presentation of the subject to such a varied audience in such small compass presents, I am afraid, insuperable difficulties, and this fear is not dispelled by reading the book. The second chapter dealing with psychological mechanisms of head pain and presented in a manner consistent with orthodox psychoanalytic concepts will perhaps be unpalatable to a large number of readers who may go no further. The reviewer, not so fortunate, finds, however, in the later chapters of the book many portions which would be quite helpful to the internist and general practitioner. It is unlikely that the information therein contained would come as news to either the neurologist or psychiatrist. The presentation is something on the style of the now popular "do it yourself" article. Although it can be read with profit by any physician, one should not be disappointed if, even after this reading, the treatment of headache remains a most puzzling and difficult matter.

Henry Newman, M.D.

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SCOVILLE'S—THE ART OF COMPOUNDING—Ninth Edition—Glenn L. Jenkins, Ph.D., Dean and Professor of Pharmaceutical Chemistry, Purdue University; Don E. Francke, D.Sc., Chief Pharmacist, University Hospital, University of Michigan, Ann Arbor, Michigan; Edward A. Brecht, Ph.D., Dean and Professor of Pharmacy, University of North Carolina; and Glen J. Sperandio, Ph.D., Associate Professor of Pharmacy, Purdue University. The Blakiston Division, McGraw-Hill Book Company, Inc., New York, 1957. 551 pages, $11.00.

The ninth edition of Scoville's "The Art of Compounding" is probably of less interest to Practicing Physicians than the first edition may have been in 1885. This is due to the fact that physicians no longer "compound" their prescriptions. And since many prescriptions today are less complex than they were in the last half of the last century, the average pharmacist (unless he is working as a manufacturing pharmacist), has less occasion to follow the complex formulations of the past.

"The Art of Compounding" is intended as a reference and textbook for practicing pharmacists, and as such in schools of pharmacy, would appear to be well suited to fulfill this need. But in no sense, would the average practicing physician find great use for a reference of this sort, however admirable it may be for its primary purpose.

UROLOGICAL SURGERY—Third Edition—Austin Ingram Dodson, M.D., F.A.C.S., Richmond, Virginia. Professor of Urology, Medical College of Virginia. The C. V. Mosby Company, St. Louis, 1956. 868 pages, $20.00.

This is the latest edition of what has long since become the standard textbook on the technical details of urological surgery. As explained by the author in his Preface to the First Edition, it does not pretend to be a complete treatise on urology, but is rather a surgical supplement to the numerous other existing texts. Naturally there is necessarily some background discussion of anatomy and pathology, but by far the major part of the text is limited to descriptions of surgical principles and techniques. Space limitations do not permit detailed description of all modifications of the various procedures. He quotes Marchetti with the statement that he has found "approximately 95" surgical methods for the cure of stress incontinence. For each condition, however, Dodson does describe adequately those methods which he has found most valuable in his everyday practice.

Though the size of the volume has been increased in this edition, the author has found it necessary to omit some nonsurgical subjects included in the former editions, in order to include more recent developments in surgical technique, including the surgical diagnostic procedures such as arteriography and retroperitoneal air injection. Several chapters are contributed by men whom Dodson describes as "more capable than I to discuss particular subjects." As might be expected these chapters are not limited exclusively to the surgery of the disease under discussion, but they are all clear and concise presentations.

Not all of the more recent developments in urological surgery are described in complete detail, but as a rule the reference to the original description of the operation is included in the bibliography. One excellent example is the four line reference to the Culp pelvic flap modification of Foley's plastic operation on the ureteropelvic junction. The author also apparently rejects the recent tendency to omit the ureteral splint and the nephrostomy as essential parts of these operations. All approaches to surgery of the prostate are included, and the discussion seems eminently fair.

The form of the book and the organization of the material do not differ materially from previous editions. The illustrations are excellent, and for the most part serve to illuminate the text effectively. Numerous pictures are essential in a book of this kind to clarify the descriptions of the various steps in technique, and probably even more of them would have been acceptable.

On the whole this new edition is a worthwhile improvement on a book that was already a very superior work. There is no doubt that Dodson is and will continue to be the outstanding text on the technique of urological operations and an absolute "must" for the library of the practicing urologist. It is highly recommended.

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PRINCIPLES OF SURGICAL PHYSIOLOGY—Harry Davis, M.D., C.M., F.A.C.S. Clinical Professor of Surgery and Director of Surgical Research, College of Medical Evangelists; Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers, 49 East 33rd Street, New York 16, N. Y., 1957. 841 pages, $20.00.

Ten years ago there were no books available written under the title of *Surgical Physiology*. In the past five years, however, three books have appeared entitled *Surgical Physiology*, namely those of Nash, Zimmerman and Levine, and now the present book by Davis. All three of these books are good, but the present work has certain appealing features and advantages. It is written by a single author who preserves a continuity of thought, style, and expression of a high order throughout the entire volume. Better perspective and a more equitable emphasis on the field of general surgery is thereby obtained. The orientation of the book is towards the basic physiologic and biochemical facts which form the basis of our concepts of modern surgery.

Part I of the book is devoted to the general problems of surgery, including fluids, electrolytes, metabolism, and tissue transplantation. Part II takes up each system in turn, and surgical specialties are handled in a perspective clearly relating their special knowledge to the general principles of surgery. Technique is not discussed, but the rationale for various proposed techniques in surgery are clearly evaluated and defined.

The style is clear, concise, and lucid. The illustrations are few, but numerous diagrams are offered to simplify and guide the reader through complex physiological and biochemical mechanisms. The reference lists are well chosen, and the author is to be congratulated on bringing the latest physiological and biochemical concepts to the surgeon. This book will help bridge the inevitable gap which results between the rapid development of basic and clinical aspects of medicine and surgery. The bridging of this gap leads to clearer surgical thinking and sounder clinical care of surgical patients. The book can be highly recommended to students, house officers, and practicing surgeons who desire reeducation in the basic concepts of surgery.

Victor Richards, M.D.

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ORAL DIAGNOSIS AND TREATMENT (ORAL MEDICINE) Third Edition—A Textbook for Students and Practitioners of Dentistry and Medicine—Samuel Charles Miller, D.D.S., F.A.C.D., F.A.D.M., Professor of Periodontia and Oral Medicine, New York University College of Medicine. The Blakiston Division, McGraw-Hill Book Company, New York, 1957. 977 pages, 577 black and white illustrations and 30 color plates, $16.00.

This book is well written and carefully compiled and is of more value to the dentist than to the physician. However there are parts of it which are of great value to the physician, particularly those dealing with diseases and deformities of the head and neck.

The chapter on Diagnosis of Lesions of the Lip and Mouth is most thorough. The chapter on Head Pain is complete and instructive and of great help in diagnosis. There is a chapter on diseases of the mouth and adnexa in children and also one on dental conditions in children. The chapter on Diseases of the Mouth and Oral Mucous Membranes is most instructive. The section on Roentgenographic Interpretation is most instructive and well done. Surgical management of oral disease is quite completely covered except for the technic of special surgical procedures such as cleft lip and palate.

The next section of the book on Periodontal Disease and lesions of the hard structures of the teeth and of prosthetics occupies at least one-quarter of the book and is of interest primarily to the dentist. There is a good chapter on Diagnosis and Treatment of Diseases of the Salivary Glands. After a consideration of salivary analyses and caries control, there is a section on manifestations of metabolic and endocrine dysfunction, followed by oral and dental diseases of occupational origin; aviation dentistry and laboratory tests in oral diagnosis.

This book is filled with many photographs. The color photographs, of which there are considerable, are outstanding. The black and white photographs are good but are not in a class with the color photographs for accurate delineation of pathological conditions.

This book is of great value to the oral surgeon and to the dentist and is of definite value to those who work about the head and mouth.

George Warren Pierce, M.D.

California MEDICINE

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KEY TO ABBREVIATIONS USED

(Or.)—Original Article; (Ed.)—Editorial; (CMA)—California Medical Association; (CR)—Case Report; (I)—Information; (LE)—Letters to the Editor; (MJ)—Medical Jurisprudence.

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Council Now Screening Foreign Medical Graduates

(Continued from Front Advertising Section Page 58)

American Medical Qualification Examination, is adequate for assuming an internship in an American hospital.

The council also will provide hospitals, state licensing boards, and specialty boards which the foreign medical graduates designate with the results of the three-way screening. It also will accumulate and publish each year complete data regarding the numbers and placement of foreign medical graduates in this country.

Dr. Smiley emphasized that the council will not serve as a placement agency either for interns or residents; it will not attempt to evaluate the teaching program or inspect or approve any foreign medical school, and it will not act as an intercessor for foreign medical graduates having problems under discussion by state boards of medical licensure or specialty boards.

First Examination in February: Dr. Smiley said that tentative plans call for the first American Medical Qualification Examination for foreign medical graduates already in this country to be held in either February or March 1958, and that the second such examination for foreign medical graduates both here and abroad will be held in either July or August.

Formation of the council was first announced last February at the 53rd Congress on Medical Education and Licensure in Chicago. It was the medical profession's answer to the mushrooming problem posed by the thousands of foreign-trained physicians now in the U. S.

In discussing the council's work, Dr. Kinsman said that the screening process was initiated to help maintain the present high medical standards in the U. S. by making sure that foreign-trained physicians wishing to come here for hospital appointments or practice have reached a level of educational attainment comparable to that of students in approved American medical schools at the time of graduation.

"At the same time," he added, "the council hopes to encourage the well-trained foreign physician to take advantage of the opportunities to further his education in this country."

There has been a continuing influx of foreign-trained physicians to the U. S. for a long time. At present, there are more than 6,000 such physicians in this country on temporary visas serving as interns or residents. All foreign-trained physicians here on temporary visas are supposed to return to their native countries on completion of their internship or residency training.

In addition, there is another group of approximately 1,000 foreign-trained physicians who enter each year as immigrants or as American citizens returning after completing their medical education abroad.

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Fear Called Chief Deterrent To Heart Disease Recovery

(Continued from Front Advertising Section Page 54)

patients is the personal economic problem faced by such a patient.

"This reflects the awareness on the part of the family physician of the potentially devastating effect of the heart disease on the patient's ability to earn a living," the report said.

Seven of the 40 doctors surveyed felt the need for increased availability of facilities to help cardiacs find suitable jobs. The lack of such facilities in less populated areas was apparent from the responses to this question.

Another survey is also reported by the same four researchers in the same issue of the *Journal.* This questionnaire was sent to medical directors of 19 diversified industries operating plants in widely scattered parts of the U. S. The industries employ approximately 251,000 persons.

According to the article, only nine of the 19 industries had a stated policy to hire cardiac patients and during the preceding year only 242 were hired in a total of 19,321 new workers employed.

The article said:

"Factors considered of importance in industry's

(Continued on Page 76)

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Fear Called Chief Deterrent To Heart Disease Recovery

(Continued from Page 72)

reluctance to hire cardiacs included (1) possible compensation, sickness benefit, or pension liability; (2) the large number of cardiacs already employed who developed their disease while at work; (3) lack of suitable jobs for cardiacs in addition to those already employed, and (4) a variety of lesser factors."

The article added:

"Many problems in the rehabilitation of the cardiac worker in industry remain to be solved but progress can be made by: (1) the education of practicing physicians, patients, and industry; (2) continued research in industry and in the laboratory; (3) a broad legislative study of the whole field of workmen's compensation, and (4) continued and increasing cooperation between physicians in private practice and those in industry."

Dr. Williams is clinical instructor in medicine, Southwestern University School of Medicine; Dr. White is consultant at the Massachusetts General Hospital; Dr. Rusk is professor and chairman, department of physical medicine and rehabilitation, New York University College of Medicine, and Dr. Lee is with the department of internal medicine, Palo Alto Medical Clinic.

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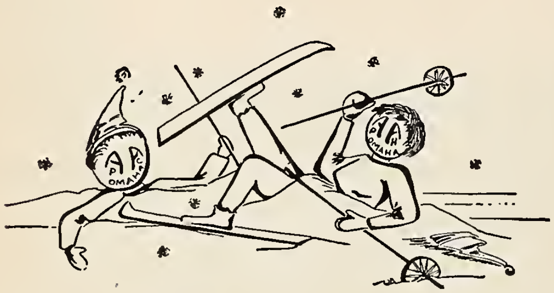

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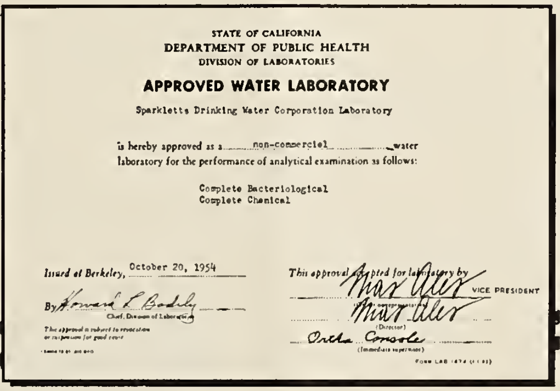

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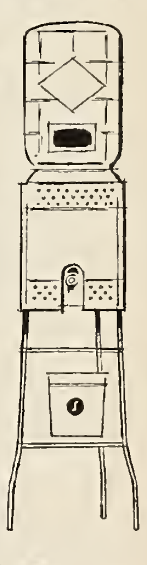

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(Continued from Front Advertising Section Page 58)

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(Continued on Page 104)

TV May Help Children's School Work, Grades

Contrary to popular belief, television's effect on school children is not all bad, Northwestern University studies have shown.

In fact, children's strong interest in television may be an asset, if television watching is handled properly in the home, according to Paul Witty, Ph.D., director of the psycho-educational clinic, Northwestern University, Evanston, Illinois.

Each year since 1949 the Northwestern clinic has studied the TV viewing habits of more than 2,000 children in the Chicago area. Children, their teachers, and their parents have been interviewed, Witty said in the November issue of *Today's Health*, the American Medical Association's health magazine.

By the spring of 1950, after TV's first appearance in 1949, 43 per cent of the children interviewed had TV sets at home. In 1951, 68 per cent had them, and in 1957, 96 per cent had them. In one school studied this year, only one child did not have a TV set at home.

In 1950 many people believed that the televiewing would prove a passing fancy—especially for children—and that the amount of time given to it would drop sharply after its novelty wore off. This proved unrealistic. Children spend as much or more time watching TV now than they did at first, Witty said.

In 1950 elementary school children averaged 21 hours a week watching TV; in 1951 the average dropped to 19 hours, but it went up later with the appearance of new and more appealing programs. High school students devote less time to TV; the average in 1957 was 12 hours a week.

The Northwestern studies show that TV is not having the predicted bad effect on children's health. In 1950 parents reported that children slept less, played less, and were more nervous and disturbed. But as the years have gone by, fewer and fewer parents voice these complaints, apparently because they are trying to arrange proper conditions for televiewing and are encouraging rest periods and changes in activities, Witty said.

While children's interests and hobbies have changed slightly since 1950, their outdoor recreation has not changed much, the studies have shown.

Emotional and nervous problems appear to be diminishing. When children who spend an extremely large amount of time watching TV have emotional difficulties, teachers have found in every case other factors, such as poor home or unfavorable environment.

Television appears to have a conflicting effect on school work and grades, Witty said. There seems to be little relationship between grades, and time spent watching television, although excessive watching appears to be associated with somewhat lower grades. However, one teacher remarked, "Good stu-

(Continued on Page 83)

Four and a Half Million Transfusions Given in 1956

More than 4½ million blood transfusions were given to nearly 2 million Americans during 1956, the Joint Blood Council, Inc., has estimated.

Approximately 5 million pints of blood were collected through various agencies during the year, a post card survey of American hospitals showed.

The project advisory committee of the Joint Blood Council reported the survey in the November 2 *Journal of the American Medical Association.* The committee based its figures on a sample that covered an estimated 78 per cent of the blood used in the United States during 1956.

The survey showed that hospitals obtaining blood from voluntary unpaid donors provided a surprisingly large share of the blood used. They collected 36 per cent, as compared with 38 per cent collected by regional American Red Cross collection centers.

Other sources and their percentages were: Commercial blood banks, 11 per cent; nonhospital blood banks, 9.5 per cent; hospitals that furnish blood to other hospitals, 4 per cent, and directly paid donors, 2 per cent.

The survey is the first step in a comprehensive study of the total American blood transfusion program. The council hopes the study will eventually

(Continued on Page 88)

TV May Help Children's School Work, Grades

(Continued from Page 78)

dents tend to remain good; poor students stay bad."

Television may serve as a way of learning or as an incentive to learn more about a particular subject. Children who think TV helps their school work mention its value in improving vocabulary and knowledge of history, current events, science, people at home and around the world, and books. Librarians report that children are reading "more than ever," which indicates that television has not cut reading.

Witty urged parents and teachers to work for better programs, to give children the guidance and encouragement they need to derive the greatest benefit from their "newest and best-loved recreation," and to remember that television is "a problem only in homes in which it is permitted to become a problem."

C.M.A. ANNUAL SESSION

Los Angeles

April 27-30, 1958

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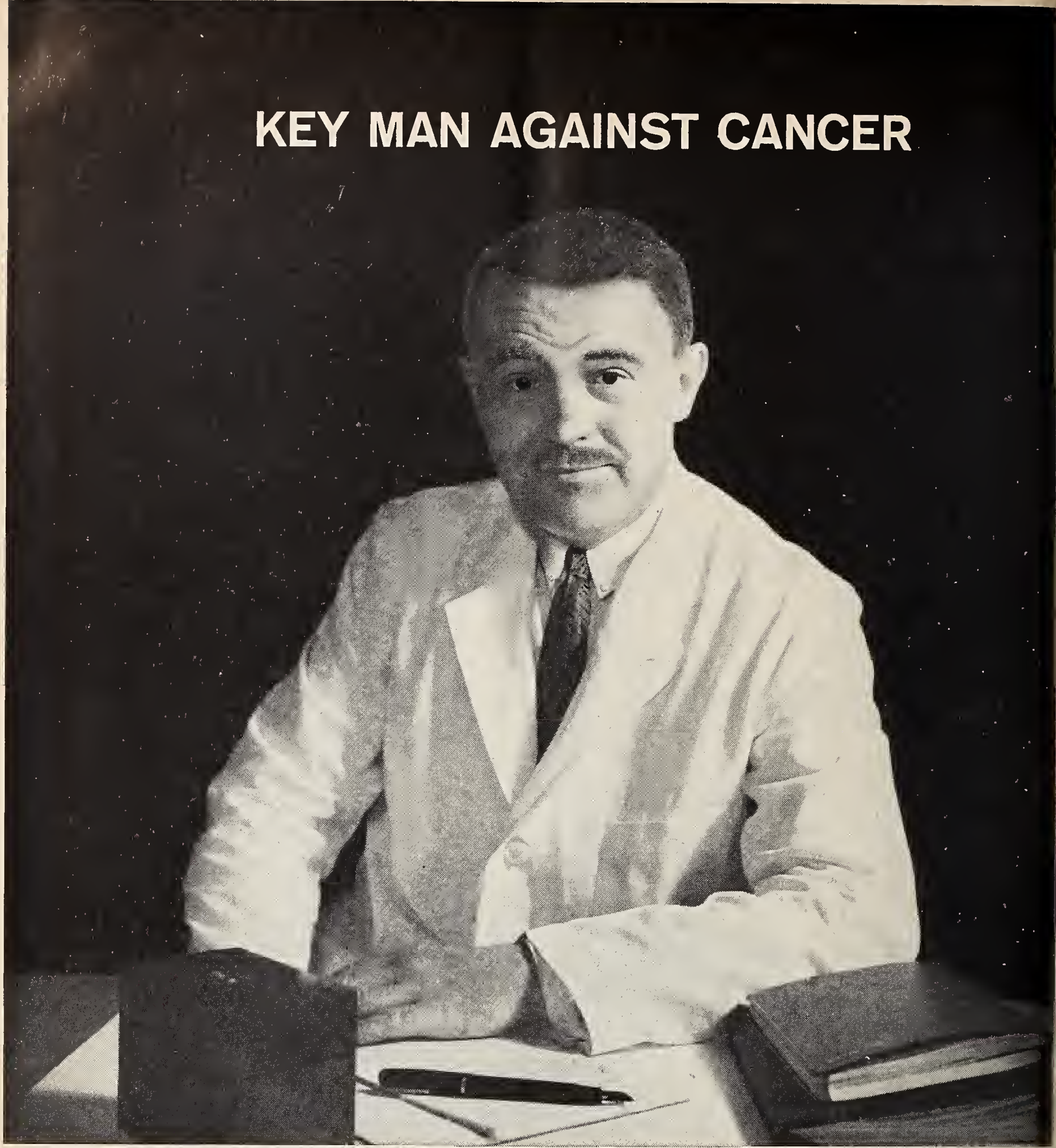

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"Eighty-seven patients with various infections of the skin were treated over a period of six weeks with [Signemycin]. Excellent or good results were achieved in sixty-seven, including eleven of twenty-two patients refractory to other antibiotics."

Lewis, H. H.; Frumess, G. M., and Henschel, E. J.: Rocky Mountain M. J. 54:806 (Aug.) 1957.

"Results of treatment with oleandomycin-tetracycline of 50 infections [mostly respiratory] due to resistant organisms and 40 infections [respiratory, skin, urinary infections] due to sensitive organisms are very encouraging. In some of these patients, [Signemycin] was lifesaving, and in others surgery was made unnecessary. This confirms other reports."

Shubin, H.: Antibiotic Med. & Clin. Therapy 4:174 (March) 1957.

Based on case reports documented by independent investigators in 26 countries abroad, the clinical response obtained with Signemycin in 1404 patients with a wide variety of infections was successful in 1329 patients; in 13 cases only was it necessary to discontinue therapy because of side effects.

Report on 1404 Cases Treated with Signemycin: Medical Department, Pfizer International. Available on request.

In 50 nonselected patients, Signemycin "... appears to be effective in the treatment of most general surgical infections, including virulent staphylococcus aureus infections. In some cases these infections had been clinically resistant to other antibiotics. The drug is apparently well tolerated."

Levi, W. M., and Kredel, F. E.: J. South Carolina M. A. 53:178 (May) 1957.

Of 50 patients with various infectious processes, 26 had not responded to previous antibiotic therapy. With Signemycin "Ninety-six per cent of the mixed infections were clinically controlled. . . . and in none of the cases was there any reason to discontinue the drug."

Winton, S. S., and Chesrow, E.: Antibiotics Annual 1956-1957, New York, Medical Encyclopedia, Inc., 1957, p. 55.

Signemycin in 79 patients with severe soft tissue infections: "The average response of these cases was excellent and inflammatory symptoms subsided with almost uniform rapidity.... The magnitude and incidence of surgical intervention was reduced.... Side reactions were minimal. . . ."

LaCaille, R. A., and Prigot, A.: Antibiotics Annual 1956-1957, New York, Medical Encyclopedia, Inc., 1957, p. 67.

Five groups of patients (total 211) with acne were treated with one of five antibiotic agents, including Signemycin (55 cases). "The results were evaluated taking into consideration the usual response to such conservative conventional therapy and the rapidity of response." In 8 weeks, Signemycin rapidly attained and maintained the highest percentage of efficacy of antibiotic agents tried.

Frank, L., and Stritzler, C.: Antibiotic Med. & Clin. Therapy 4:419 (July) 1957.

In the treatment of 78 patients with tropical infections, some complicated by multiple bacterial contamination or present for years, Signemycin was found to be "... an exceptionally effective agent," requiring smaller doses and less extended periods of therapy than with the tetracyclines alone, and "caused no notable toxic reactions."

Loughlin, E. H., and Mullin, W. G.: Antibiotics Annual 1956-1957, New York, Medical Encyclopedia, Inc., 1957, p. 63.

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Four and a Half Million Transfusions Given in 1956

(Continued from Page 83)

lead to a smoothly operating and well-organized national blood program. A second survey seeking more specific details from hospitals and blood banks is now underway.

The council, a voluntary organization established in 1955, is composed of representatives from the American Association of Blood Banks, the American Hospital Association, the American National Red Cross, the American Society of Clinical Pathologists, and the American Medical Association. These organizations are all concerned with procuring, processing, preserving, and distributing blood and blood derivatives.

The council's objective is to coordinate all activities in this field, including the interchange of blood, the standardization of cross-matching and typing procedures, the accreditation and inspection of blood banks, the stimulation of blood donor campaigns, and the encouragement of research.

President of the council is Dr. Leonard W. Larson, Bismarck, N. D., a member of the American Medical Association Board of Trustees. Dr. Frank E. Wilson, Washington, D. C., is executive vice-president and secretary of the council, which maintains headquarters in Washington.

An editorial in the same *Journal* pointed out that there has been local progress in blood transfusion services, but there is an "urgent need" for the development of a national program.

(Continued on Page 96)

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Wandering Patients Suffer From Unusual Syndrome

Patients who travel from hospital to hospital faking startling symptoms to gain admission may have Munchausen's syndrome.

A case of the syndrome was outlined in the October 26 *Journal of the American Medical Association* by Dr. John S. Chapman of the State University of Iowa College of Medicine, Iowa City. He said his is the first reported American case, although the condition has been reported frequently in England.

In 1951 an English physician "somewhat facetiously" applied the term Munchausen's syndrome to "perennial peregrinating problem patients" because "their wide travels and fanciful histories are reminiscent of the travels and adventures of fiction's Baron Munchausen," Dr. Chapman said.

Such patients are an economic threat and an extreme nuisance to the hospitals they visit. Publicizing their histories in medical journals, and thereby alerting the medical profession, seems the only way of coping with them, he said.

His patient was a 39-year-old merchant seaman and part-time professional wrestler who kept the medical wards of the State University of Iowa hospitals in a state of turmoil for 40 days in 1954, after he "burst into the hospital with blood spattered all over the front of his shirt."

He seemed to be coughing up blood and claimed to be in anguish from pain in the left side of his chest. He exhibited a number of surgical scars on the abdomen and had "an uncanny knowledge" of the location of his own veins. On examination both legs were red, hot, and swollen with distended veins, indicating thrombophlebitis. It was assumed he had suffered a pulmonary embolus.

He demanded drugs, diagnostic studies, and surgical treatment. Later he became increasingly uncooperative and disturbed, even to the point of ripping out surgical stitches. He was released from the hospital, only to return. Later he was sent to a mental institution, from which he eventually escaped.

A search of his wallet revealed he had been in a number of hospitals before reaching Iowa City. In fact, he had been in at least 16 hospitals between 1943 and 1954. After leaving Iowa City, he was traced through at least nine hospitals. Dr. Chapman learned through letters from these hospitals that the sailor followed much the same pattern in all of them. He left unpaid bills approximately $2,000 at each of six or more hospitals.

It is Dr. Chapman's opinion that the patient's bleeding is faked and is produced by a variety of methods, although the hospital staff never learned just how he did it. None of his many diagnostic studies have demonstrated any abnormality to account for his chest pain or bleeding, Dr. Chapman said. It is possible that years ago he had a real pulmonary embolus and thus learned the symptoms

(Continued on Page 96)

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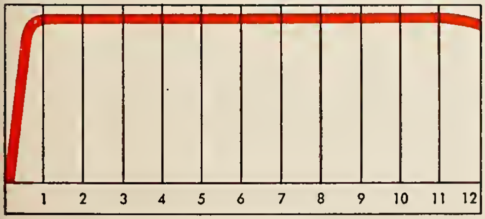

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Four and a Half Million Transfusions Given in 1956

(Continued from Page 88)

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C.M.A. ANNUAL MEETING
APRIL 27-30, LOS ANGELES

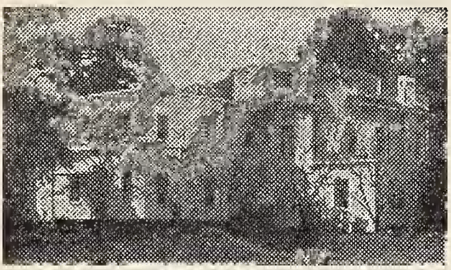
Wandering Patients Suffer From Unusual Syndrome

(Continued from Page 92)

which he now simulates.

Nevertheless, he is "now a professional hospital bum with a technique which guarantees him admission to any hospital at any time," Dr. Chapman said. "He seems to enjoy the consternation and sterotyped response evoked by his blood-spattered appearance. . . . He prefers large hospitals, and is especially fond of university centers. He expectorates blood in spectacular fashion. He plays upon the sympathies of the interns and residents. . . . He blusters but never

(Continued on Page 107)



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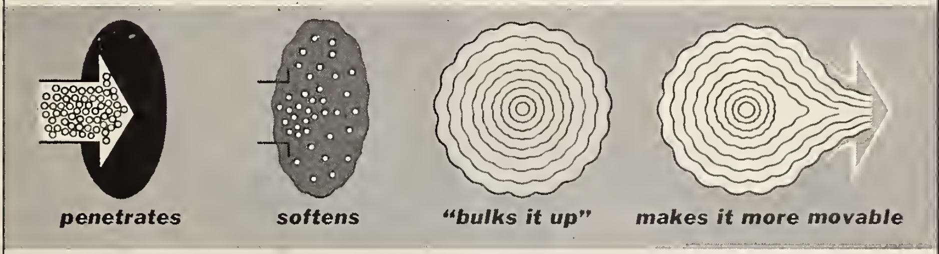

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Rehabilitation New Type of Medicine

A new kind of medicine—rehabilitation—is being created today as more physicians realize that the medical job is not done when the cast is removed or when drugs have cured the immediate illness.

In fact, rehabilitation is becoming as important as preventive health and the actual medical treatment of the sick or injured, according to a special article in the November 2 *Journal of the American Medical Association.*

Today, as never before, thousands of physicians of all types are recognizing that follow-through rehabilitation of all patients (not just the severely disabled) is a prime medical responsibility.

World War II and the "Penicillin Age," with its beneficial chain reaction in all branches of medicine, began to open many doors which formerly had been closed to disabled persons, the article said.

"Turning to the handicapped to relieve its wartime manpower shortage, industry found it was getting more than it bargained for: better workers. One-time employees injured in battle, meanwhile, were surviving hurts which, a generation earlier, surely would have doomed them. Many of these veterans returned home to show that, with proper training, they too could be self-sufficient," the article said.

While "more likely than not, a physician's hand holds the key" to the doors now opening to the disabled person, the physician can not do the job alone. He needs the help and skill of allied medical groups, industry, and lay individuals and organizations.

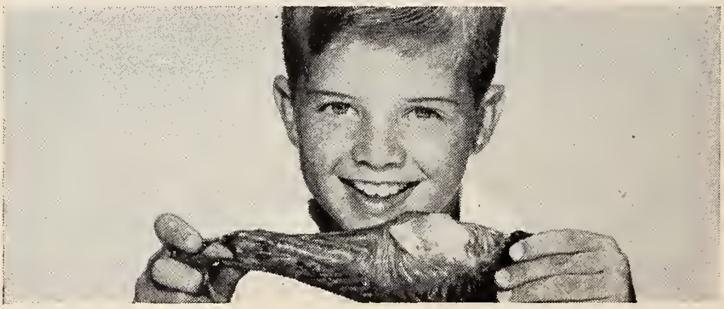
Industry, according to the article, has an ample pool of disabled from which to draw manpower. Over 2 million seriously handicapped men and women of employable age are wasting away their skills. This number is being increased by about 250,000 each year.

Every day of every year the American public is paying $1,500,000 in taxes to provide maintenance and medical care for the disabled. Yet one government study shows that earnings of the disabled persons rehabilitated last year rose by 580 per cent—from 19 to 129 million dollars.

Miss Mary Switzer, director of the United States Office of Vocational Rehabilitation, estimates that in the next three years, rehabilitees of 1956 will pay back in federal taxes the amount of money which the United States has spent for their rehabilitation—32 million dollars. States had contributed another 19 million dollars.

In addition to helping themselves and the nation's economy as a whole, rehabilitated persons have demonstrated their worth to their employers all over the country. For example, Lockheed Aircraft Company saved $65,000 in salvage by employing a workshop for the blind to recover tiny nuts, screws,

(Continued on Page 107)



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Six Thousand Seven Hundred Foreign Physicians Study in United States

More than 6,700 foreign physicians were taking advanced medical training in American hospitals in 1956-57, it was recently reported.

Writing in the November 16 *Journal of the American Medical Association*, two New Yorkers summarized a survey conducted by the Institute of International Education and the American Medical Association.

The study covered only interns and residents who had both a foreign citizenship and permanent residence in a foreign country. It did not include displaced persons resettled in the United States or foreign citizens who have immigrated to the United States for permanent residence.

There were 6,741 foreign physicians serving internships or residencies in 797 American hospitals. Of these physicians, who came from 88 countries, 4,753 were residents and 1,988 were interns. Only 908 of the total were women and more than 60 per cent of these women were from the Far East.

The physicians were in 44 states, the District of Columbia, Hawaii, and Puerto Rico. Four states, Idaho, Nevada, New Hampshire, and Wyoming, did not report any. About one fourth (1,673) of all the foreign physicians were in New York state. More than 100 each were in Ohio, Illinois, Massachusetts, Pennsylvania, New Jersey, Missouri, Maryland, Michigan, Texas, the District of Columbia, Connecticut, and Minnesota.

Over one third (2,293) came from the Far Eastern countries with Latin America and Europe each the origin of one fifth, and the Near and Middle East of one eighth.

The foreign residents were studying in 31 different specialties, with general surgery and general medicine leading the list.

The authors noted that the 1956-57 study is similar to studies in the preceding three years, although the number of physicians has increased each successive year. This may be accounted for in part by the fact that more hospitals have replied to the survey each year.

They also mentioned a survey of Americans studying abroad. Of 9,887 United States citizens studying aboard in 1955-56, approximately 21 per cent (2,056) were reported to be studying medicine. Of these, 669 were in Switzerland, 319 in Italy, 293 in Canada, 174 in the Netherlands, and 108 in Belgium.

The authors are Dr. James E. McCormack, assistant vice-president of Presbyterian Hospital, New York, and Arthur Feraru, D. en D. de l'U. (Lyons), who is associated with the Institute of International Education.

Wandering Patients Suffer From Unusual Syndrome

(Continued from Page 96)

actually harms anyone. He submits to all diagnostic procedures after much argument and persuasion. . . . He demands and gets attention, time, and drugs."

This patient's behavior is characteristic of patients with Munchausen's syndrome. Just why they behave as they do is obscure, although a number of possible reasons have been suggested, Dr. Chapman said.

They may get "pathological enjoyment from the dramatic role of the patient." They may harbor a grudge against the medical profession and resort to this method to get even, but, if so, "they must also have an innate trust of doctors, for they allow surgical operations and other dangerous procedures to be performed," Dr. Chapman stated.

Some may desire drugs or a hiding place from the police. Still others may use the technique as an elaborate scheme for obtaining free lodgings, although they realize that diagnostic studies will follow —a rather "exorbitant price for bed and board." Dr. Chapman said. They may also suffer from various psychiatric disorders or reactions to previous hospital experiences.

However, by the time the Munchausen-type pattern has been established, the patient is a candidate for a mental institution, even if he has a true organic disease to explain his symptoms.

Rehabilitation New Type of Medicine

(Continued from Page 98)

and washers from sweeping below its B-47 production line.

Of course, the article pointed out, a man doesn't suddenly become skilled by virtue of his handicap. It takes expert training and counseling under medical guidance to develop capabilities out of disabilities. This has led to job training for the handicapped at 123 Veterans Administration hospitals, at special centers, in some general hospitals, and even on the work site. And companies which will hire only handicapped workers are developing.

But, as the article concludes, rehabilitation for the disabled is much more than a cure or a way to a job. It is "delicious freedom from a prison of dependence." Having survived, disabled people now need to be revived.

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BOOKS RECEIVED

Books received by CALIFORNIA MEDICINE *are acknowledged in this column. Selections will be made for more extensive review in the interests of readers as space permits.*

ABSTRACTS OF SOVIET MEDICINE—Part A—Basic Medical Sciences, Part B—Clinical Medicine, Vol. I, 1957, No. 1. Excerpta Medica Foundation, New York Academy of Medicine Building, 2 East 103 Street, New York 29, N. Y. Part A, $15.00; Part B, $15.00; Combined subscription—Part A and B, $25.00.

BIOLOGIC BASIS OF CANCER MANAGEMENT, THE—Freddy Homburger, M.D., Research Professor of Medicine, Tufts University. Paul B. Hoeber, Inc., Medical Book Department, Harper & Brothers, 49 East 33rd Street, New York 16, N. Y., 1957. 354 pages, $10.00.

CHEMICAL ANTHROPOLOGY—A New Approach to Growth in Children—Icie G. Macy and Harriet J. Kelly. The University of Chicago Press, Chicago 37, Illinois. 149 pages, $3.75.

CHRONICALLY ILL, THE—Joseph Fox, Ph.D., The Philosophical Library, 15 East 40th St., New York, 1957. 229 pages, $3.95.

CLINICAL PATHOLOGY DATA — Second Edition — Compiled by C. J. Dickinson, B.A., B.S., B.M., M.R.C.P., Medical Registrar, Middlesex Hospital. Charles C. Thomas, Publisher, Springfield, Illinois, 1957. 91 pages, $4.00.

CLOSED TREATMENT OF COMMON FRACTURES, THE — Second Edition—John Charnley, B.Sc., M.B., F.R.C.S., Orthopaedic Surgeon, Manchester Royal Infirmary. The Williams and Wilkins Company, Baltimore, 1957. 260 pages, $10.00.

EXTENSILE EXPOSURE—Second Edition—Arnold K. Henry, M.B., Dublin; M.Ch. (Hon.) Trinity College, Dublin and Cairo. The Williams and Wilkins Company, Baltimore, 1957. 320 pages, $10.00.

FADS AND FALLACIES IN THE NAME OF SCIENCE —Second Revised Edition—The Curious Theories of Modern Pseudoscientists and the Strange, Amusing and Alarming Cults that Surround Them. A Study in Human Gullibility.—Martin Gardner. Dover Publications, Inc., 920 Broadway, New York 10, N. Y., 1957. 363 pages, T394 Paperbound, $1.50.

FEAR: CONTAGION AND CONQUEST—James Clark Moloney, M.D. Philosophical Library, Inc., 15 East 40th Street, New York, 1957. 140 pages, $3.75.

FOR FUTURE DOCTORS—Alan Gregg, M.D. University of Chicago Press, Chicago 37, Illinois. 165 pages, $3.50.

FUNCTION OF THE URETER AND RENAL PELVIS, THE—Pressure Recordings and Radiographic Studies of the Normal and Diseased Upper Urinary Tract of Man—Fredrik Kiil, M.D., Research Associate, Institute for Experimental Medical Research, University of Oslo. W. B. Saunders Company, Philadelphia, 1957. 205 pages, illustrated, $7.50.

GENERAL TECHNIQUES OF HYPNOTISM—Andre M. Weitzenhoffer, Ph.D., Stanford University and Center for Advanced Study in the Behavioral Sciences (1956-1957). Grune and Stratton, Inc., New York, 1957. 460 pages, $11.50.

GOOD HOUSEKEEPING BOOK OF BABY AND CHILD CARE—L. Emmett Holt, Jr., M.D., Appleton-Century-Crofts, Inc., New York, 1957. 288 pages, including 14 pages for mother's record, $4.95.

HEADACHE—Diagnosis and Treatment—Second Edition—Robert E. Ryan, B.S., M.D., M.S. (in Otolaryngology), F.A.C.S., St. Louis University School of Medicine. The C. V. Mosby Company, St. Louis, 1957. 421 pages, $6.75.

INTEGRATING THE APPROACHES TO MENTAL DISEASE—Two Conferences Held Under the Auspices of the Committee on Public Health of The New York Academy of Medicine—Edited by H. D. Kruse, M.D., Executive Secretary, Committee on Public Health, New York Academy of Medicine. Paul B. Hoeber, Inc., 49 East 33rd Street, New York 16, N. Y., 1957. 393 pages, $10.00.

INTRODUCTION TO ANESTHESIA—The Principles of Safe Practice—Robert D. Dripps, M.D., Professor and Chairman, Department of Anesthesiology, University of Pennsylvania School of Medicine; James E. Eckenhoff, M.D., Professor of Anesthesiology, University of Pennsylvania School of Medicine; and Leroy D. Vandam, M.D., Clinical Professor of Anesthesia, Harvard Medical School. W. B. Saunders Company, Philadelphia, 1957. 266 pages, $4.75.

MALABSORPTION SYNDROME, THE—A Mount Sinai Monograph—David Adlersberg, M.D., Editor. Grune & Stratton, New York, 1957. 252 pages, $5.50.

MANUAL OF NUTRITION—Philosophical Library, 15 East 40th Street, New York 16. 67 pages, $3.50.

MAY'S MANUAL OF THE DISEASES OF THE EYE—For Students and General Practitioners—Twenty-Second Edition—Revised and edited by Charles A. Perera, M.D., Associate Clinical Professor; College of Physicians and Surgeons, Columbia University. The Williams and Wilkins Company, Baltimore, 1957. 518 pages, $6.00.

ORTHOPEDICS FOR THE GENERAL PRACTITIONER—William E. Kenney, M.D., Orthopedic Surgeon, Truesdale Hospital; and Carroll B. Larson, M.D., F.A.C.S., Professor of Orthopedic Surgery and Chairman of Department of Orthopedic Surgery, State University of Iowa. The C. V. Mosby Company, St. Louis, 1957. 413 pages, $11.50.

PEDIATRIC ROENTGENOLOGY—Dr. M. A. Lassrich, Prof. Dr. R. Prévôt, Prof. Dr. K. H. Shäfer, Hamburg. Edited by Prof. Dr. K. H. Shäfer, Hamburg. Translation from the German provided by James T. Case, M.D., D.M.R.E. (Cambridge), Professor Emeritus, Radiology, Northwestern University Medical School, Chicago; Director, Memorial Cancer Foundation, Santa Barbara. Grune & Stratton, Inc., New York, 1957. 333 pages, 700 illustrations, $28.00.

PRACTICAL ELECTROCARDIOGRAPHY—Second Edition—Henry J. L. Marriott, M.D., Associate Professor of Medicine, University of Maryland. The Williams and Wilkins Company, Baltimore, 1957. 226 pages, $5.00.

ROOTS OF MODERN PSYCHIATRY—Essays in the History of Psychiatry—Mark D. Altschule, M.D., Grune & Stratton, Inc., New York, 1957. 184 pages, $5.75.

STEDMAN'S MEDICAL DICTIONARY—Nineteenth Revised Edition—Edited by Norman Burke Taylor, V.D., M.D., F.R.S.C., F.R.C.S. (Edin), F.R.C.P. (Can.), M.R.C.S. (Lon.), University of Western Ontario and formerly of the University of Toronto—In collaboration with Lieut. Col. Allen Ellsworth Taylor, D.S.O., M.A., Classical Editor. The Williams and Wilkins Company, Baltimore, 1957. 1656 pages, $12.50.

STORY OF PEPTIC ULCER, THE—Conceived by Richard D. Tonkin, M.D., F.R.C.P., Westminster Hospital, London; Characterized by Raymond Keith Hellier, F.R.S.A. W. B. Saunders Company, Philadelphia, 1957. 71 pages, $2.25.

SURGICAL TECHNIQUE and Principles of Operative Surgery—Sixth Edition, Thoroughly Revised—A. V. Partipilo, M.D., F.A.C.S., Clinical Professor of Surgery, The Stritch School of Medicine of Loyola University. Lea & Febiger, Philadelphia, 1957. 966 pages, 719 figures containing 1235 illustrations, 4 in color, $20.00.

TUMOR SURGERY OF THE HEAD AND NECK—Robert S. Pollack, M.D., F.A.C.S., Clinical Instructor in Surgery, Stanford University School of Medicine; Clinical Instructor in Surgery (Oncology), University of California School of Medicine; Assistant Chief of Surgery, Mount Zion Hospital. Lea & Febiger, Philadelphia, 1957. 101 pages, 112 illustrations, on 49 figures, $5.00.

YEAR BOOK OF OBSTETRICS AND GYNECOLOGY, THE—1957-1958 Series—Edited by J. P. Greenhill, B.S., M.D., F.A.C.S. The Year Book Publishers, Inc., 200 East Illinois Street, Chicago, 1957. 597 pages, $7.50.

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1. Nichols, R. L. and Finland, M.: *J. Clin. Med.* 49:410, 1957.

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Forty-five Medical Schools Teach Disaster Medicine

Forty-five American medical schools are now participating in a special program dealing with the problems of military and disaster medicine.

The program, Medical Education for National Defense (MEND), was started in 1952 with five pilot schools. It has steadily expanded and now includes more than 14.000 medical students in 45 schools.

According to an editorial in the medical education number (November 16) of the *Journal of the American Medical Association*, the program has had a "far more enthusiastic reception" in the medical schools than was expected.

It is serving a very real need: That of preparing medical students for military service and for meeting the medical needs in a disaster, the editorial said. However, it may face elimination within the next year because of the economy wave now being carried out in military establishments.

The cost of the program has been most reasonable, averaging $10.000 per school per year, or about $30 per student. Last year the total cost including the operation of a coordinator's office in Washington was $325,000 for 35 schools.

"It is difficult to see how a more economical program could be devised to meet what is surely a real need," the editorial said.

It may be very difficult to do a similar job at a later date, and in the event of sudden attack the lives of many people may depend upon the degree of preparation of physicians in this special field of defense medicine, it said.

The program is carried out in medical schools, under the supervision of the individual school in whatever manner the faculty sees fit. Annually MEND sponsors a series of symposiums at federal medical installations. It also conducts a tour for deans and coordinators of MEND-affiliated schools, designed to introduce them to current problems and trends in the federal services.

Activities in the medical schools include special lectures, conferences, and demonstrations in surgery of trauma, war wounds, radiobiology, defense measures of chemical and biological warfare, aviation medicine, and various other medical civil defense problems.

MEND is a function of the MEND program subcommittee of the Association of American Medical Colleges. It is endorsed by the A.M.A.'s councils on national defense and medical education and hospitals, and by medical officials of the Department of Defense, Army, Navy, Air Force, Public Health Service, and Federal Civil Defense Administration.

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